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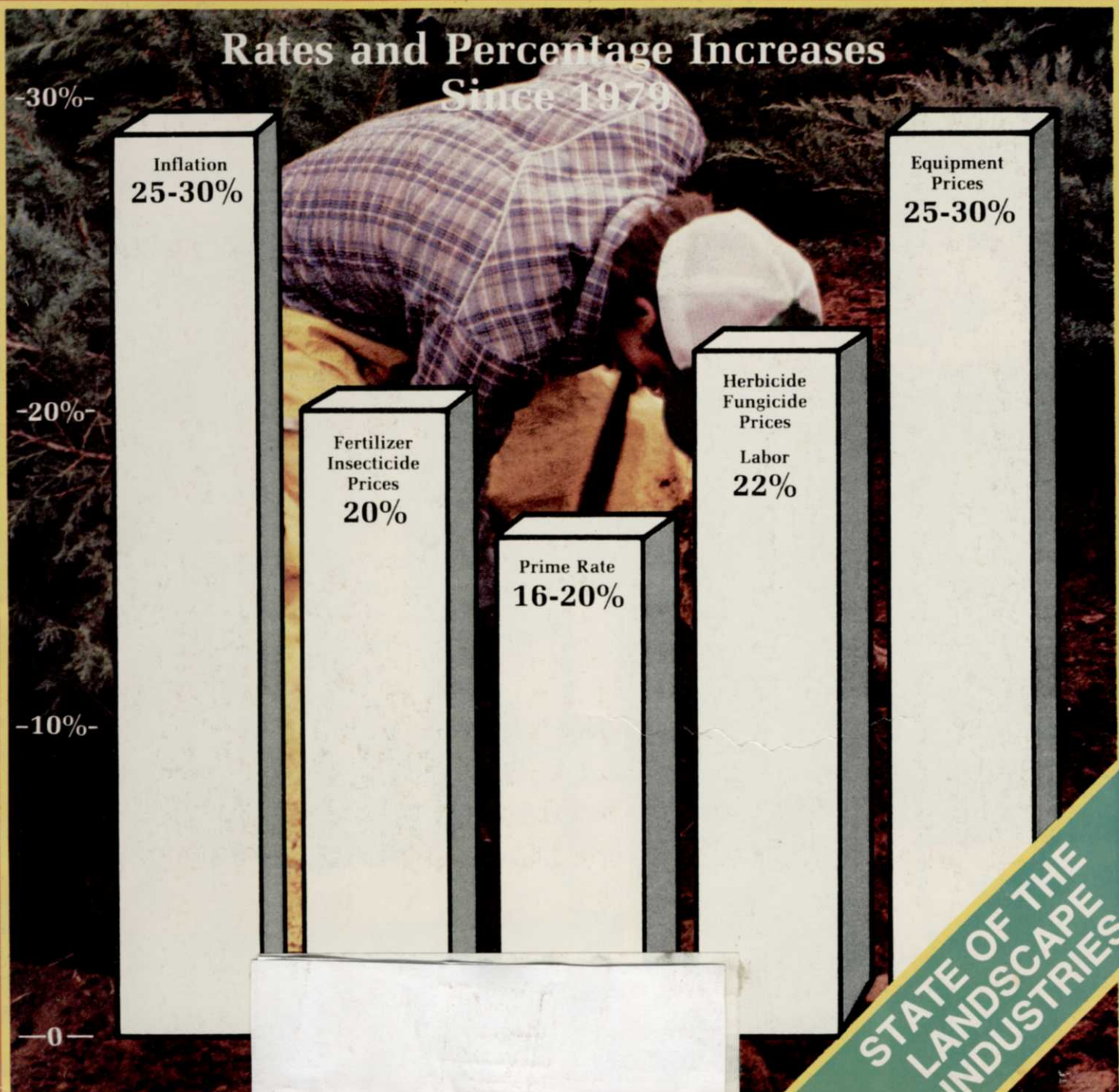
Turf Disease Basics: Experts Give Summary

1982 Residential Awards Highlight Landscape Renovation

Holly Shows Tolerance to Urban Conditions



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WT&T

Business conditions are tough, but landscape businessmen are tougher. Diversification and foresight have prevented major losses or cutbacks. See State of the Industry Report.

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OUTLOOK

By Bruce F. Shank, Executive Editor

A Market Worth Attention

While writing the State of the Industry Report I realized that suppliers aren't keeping up with you. You are changing and growing faster than they realize.

Put yourself in their boots. When you purchase advertising in most cases the business derived comes straight to you. When manufacturers advertise, the business goes to the distributor first. They wait much longer for feedback from their advertising.

Another thing we've learned is large manufacturers wrap up planning for the coming year in May or June. They are just getting initial feedback from distributors for the current year when they have to predict the next year. That is tough for anyone to do. They have to rely on historic information rather than current conditions.

To bridge the gap we often show them surveys we've done with you. We started doing regular research in 1978 and its paying off. We can prove to manufacturers, our advertisers, that you are changing and in what ways. Even then, historic data is used to challenge us.

Erik Haupt of the National Arborist Association said it best, "We have to utilize every bit of technical information out there to survive and prosper."

Some of our surveys had comments written on the bottom indicating the respondent doesn't read magazines or books or belong to an association. They know what's right for them. To me that's sad. I suppose they still use Bordeaux mixture for diseases.

My point is, without realizing it, I find myself defending the intelligence and business abilities of the landscape industry to its manufacturers and suppliers, when it should be known. The landscape architects and the lawn care businessmen have fought through this haze of disbelief to surprise everyone. They did it by unifying their efforts and proving with statistics their accomplishments.

Some of our efforts are beginning to pay off. Chemical companies are creating specialty products groups to serve the landscape markets. Stauffer, MoBay, and Rhone Poulenc are three examples. They have assigned staff just for our markets, to keep in touch, and to note change.

The lure of consumer sales still pervades the equipment manufacturers. Most of them started out on the professional side and moved over to consumer. Companies paying close attention to the landscape market will get the orders when recession lifts, or they have their distributors to thank for keeping close to the market.

The landscape markets are solid, healthy markets. They deserve complete or at least special attention.

Even the Census Bureau is adapting to the informational needs of the landscape market. That will help a great deal. It took associations pressuring the Census Bureau to accomplish the changes. It too was going by precedent and history rather than following our progress. Like agriculture, landscaping is far into the billions of dollars today. We deserve, or perhaps expect, more attention. **WTT**

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GREEN INDUSTRY NEWS

PEST CONTROL

Oregon zaps gypsy moth explosion

In an effort to avert a repeat of the Northeast's massive defoliation caused by gypsy moths, the Oregon Department of Agriculture overcame community opposition and legal roadblocks before spraying 5000 residential acres of South Salem with Sevin 4-L to eradicate the pests.

On May 20th, one day after U.S. Circuit Court of Appeals Judge Jim Redden denied an opposition group's request to ban the spraying, helicopters completed the first application. A second application was made in early June. Ray Hobson, deputy director of the State Department of Agriculture, feels that they should be able to assess the success of their effort by early August.

The moths, which were detected in the state last year, had spread significantly enough to warrant the use of the insecticide. A group of residents, protesting the use of the chemical in a residential area, postponed the treatment by taking the State as far as the Circuit Court of Appeals before the request was denied. According to Hobson, the example of the Northeast was the most persuasive argument for the use of the chemical.

When the proposal to spray was announced, mailings outlining the precautions that should be taken during the spraying were sent to all residents in the area. Included in the packet was a notice indicating that "no harmful effects have been found using this carbaryl-based insecticide." On the order of Judge Redden, a second notice was sent describing the possible hazards of Sevin. "The residents have been buffeted with information from both sides through informational meetings and public hearings," said Hobson, and added that he felt the silent majority was in favor of the treatment.

To prevent the chemical from entering the water supply, 200 ft. buffer areas around streams were flagged off and treated from the ground. Pregnant women were advised to leave the area during the spraying.

The gypsy moth's arrival in Oregon has been traced to relocated residents and travelers from northeastern states. To prevent further infestation the state is experimenting with a voluntary quarantine program. The Department of Agriculture is contacting as many newcomers and travelers from the Northeast as possible to inspect property for the insects.

The Department is also setting 10,000 traps to detect any moths coming into the state. Officials would like to avoid the necessity of further large scale sprayings.

Gypsy moths destroyed more than 13 million acres of trees in 1981, mainly in the Northeast. In the recent past, however, larvae have been reported as far south as Florida, in North Central states such as Wisconsin, Illinois, and Michigan and in the West Coast states of California and Washington.

RESEARCH

New lab to develop pest control strategy

The recent development of chemical resistances by some pests has prompted the establishment of the a new laboratory to investigate the replacement of some of the old pesticides with new and more active chemicals as well as improving the application techniques for all pesticides. The Laboratory for Pest Control Application Technology (LPCAT) opened in October of 1981 with the purpose of developing and coordinating a research effort for more effective pesticide application and use strategies in the "80's.

Headed by Dr. Franklin R. Hall, and staffed by a faculty of 17 state and Federal scientists, the laboratory is working to increase the application efficiency for pest control agents, to design and/or improve equipment and procedures to reduce unecessary exposure to humans or to non-target organ-

Continues on page 12

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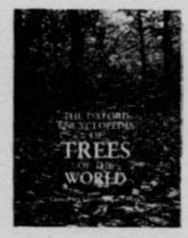

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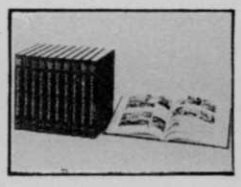

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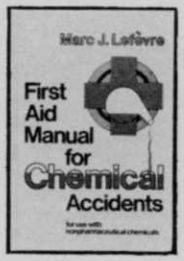

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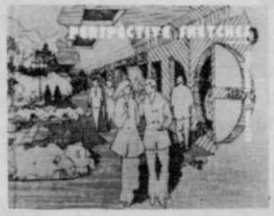

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WTT72

GOLF UPDATE

American golfers number 17,050,000

According to the National Golf Foundation, there are more than 17 million golfers in the United States. In its annual statstical summary, *Golf Facilities in the United States*, NGF noted that an estimated 13.65 million golfers play over 15 rounds of golf annually. An additional 3.4 million play 1-14 rounds per year.

"This year's report depicts golf as growing in 1981," said Research Director Sandra Eriksson. "With continued and combined efforts by course operators/owners and the industry, golf will quite possibly further expand its recreational market through this decade."

The report analyzes in depth the number of golf courses, number of golfers and number of rounds played. There are currently 12,894 golf courses in the U.S., with a 13% growth in the number of new courses opened in 1981. Golfers played some 395 million rounds last year, an increase of 10%.

Superintendents average 41-18-8

Those numbers should have particular significance to golf course superintendents. According to the Golf Course Superintendents Association of America's demographic and market research program, the average Class "A" GCSAA member is 41 years old. He has full grounds maintenance responsibility at an 18-hole private golf course and has been there for almost 8-½ years.

The average superintendent has worked at two clubs previously and is college-educated. He plays over 21 rounds of golf during the year and in between landscaping chores maintains a 10-stroke handicap.

In other GCSAA news, John Schilling, formerly GCSAA director of marketing and sales, has rejoined the association as a consultant. Schilling will serve as the head of the conference and show department while GCSAA searches for a permanent director.

GCSAA was also the recent beneficiary of some good fortune generated at this year's Masters Tournament. The Augusta National Golf Club, the tournament host, contributed $2500 to the association's Scholarship and Research Fund. "It is our hope that future Masters Tournaments will be sufficiently successful to enable us to make such contributions every year," wrote Club Chairman Hord Hardin in a letter accompanying the contribution.

NGF names Smith president

The National Golf Foundation has appointed Frank Smith Jr. as president. Smith was formerly president of CBS Sports. "I come to the Foundation not as a golfer but as a businessman who has been very successful in selling air time," said Smith. From 1966 through 1977 when Smith was vice president in charge of sales and operational resources at CBS, advertising revenues increased from $250 million to more than $1 billion annually. "I intend to pursue with vim and vigor the charter of the National Golf Foundation—to enhance the game of golf."

Smith's objectives in taking over as president are to devise and develop programs which will make golf more popular, to raise funds necessary to support those programs; and bring greater unanimity among all segments of golf. Former NGF President James Long, Spalding Sports Worldwide, has been named chairman of the NGF board. Smith is the first full-time salaried president of the National Golf Foundation, which was founded by Herb and Joe Graffis.

NEWS *from page 6*

isms, to design better management procedures for pest control and to create a better understanding of the delivery system an by analyzing the basic processes of microclimate, crops, culture and residues.

The initial research efforts of the group include turf soybeans, corn, field and green house vegetables. They will be working with conventional insecticides, fungicides, plant growth regulators, nematicides and herbicides as well as the newer fourth generation pest control agents.

According to Hall, "the pesticides we are now using have more active molecules which means that less chemical is needed but more precision is required. Changes in the registration requirements, environmental attitudes and the cost of chemical research have had a great impact on the incentives for the agricultural industry to continue research."

CHEMICALS

Union Carbide provides Sevin hotline

Information on Sevin carbaryl insecticide can now be obtained by dialing 800-334-9745, at any time of the day. This telephone service has been installed as a resource for those dealing with Sevin who have questions about its use, health and environmental impacts.

The Union Carbide Agricultural Products Company has developed this service strictly for professionals. They are not equipped to handle a large number of calls from the general public and would appreciate cooperation in not releasing the number to mass media or product end users.

SOD

Greentree Sod owners join Pacific Green/ Nunes

Pacific Green/Nunes has added Jack and Peggy Gribben to its staff as division managers. The former owners and operators of Greentree Sod & Soil, the Gribbens will now apply their expertise in retail to the Pacific Green/Nunes markets. Jack will be in the position of products manager and Peggy has been appointed retail advertising and sales promotion manager.

The Gribbens purchased Greentree Soil & Sod in 1978 and developed the

Continues on page 14

A body of water is a living thing...
A delicate balance of plant and animal life. A varied assortment of creatures, many too tiny to see. A place to make peace with the world, and enjoy the wonders of nature.
But all this can change quickly. A slight shift in the environment and a tiny group of plants may suddenly burst into a teeming mass of choking weeds and slime. The effect is dramatic, as fish and other life forms struggle for survival in this hostile new world.
How to deal with these troublesome intruders? How to be sure that the delicate creatures already there may continue their existence unaffected?
The choice is Pennwalt Aquatic Herbicides. To quickly restore the natural balance. Without harming wildlife. Or human visitors.
AQUATHOL® K Aquatic Herbicide
AQUATHOL® Granular Aquatic Herbicide
HYDROTHOL® 191 Aquatic Algicide and Herbicide
HYDROTHOL® 191 Granular Aquatic Algicide and Herbicide
Liquid and granular formulations to control water weeds and algae on contact. And each is biodegradable.
Pennwalt Aquatics. Because an environment so precious should be treated with respect and care. After all, it's a living thing.
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CHEMICALS • EQUIPMENT
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LANDSCAPE UPDATE

ALCA hooks up with Foliage Exhibition

The Associated Landscape Contractors of America and the Tropical Plant Industry Exhibition Committee have finalized details for a joint venture of the Foliage Exhibition and ALCA's Annual Meeting. ALCA's Annual Meeting is scheduled for January 15-20 at the Miami Hyatt Regency and will preceed TPIE. Thursday and Friday on the program are being left open to allow delegates to attend the trade show at the Coconut Grove Exhibition Center.

"Since Florida was the site of our Annual Meeting it was a natural to combine the trade shows," said Convention Committee Chairman Landon Reeve. "Because many of our exterior contractors do some interior work and otherwise would not have the opportunity to attend this type of specialty show, we are expecting a record breaking attendence."

NLA reelects Harrell

At the National Landscape Association/Garden Centers of America Clinic, Gerald Harrell, Landscapes Unlimited, TX, was reelected president of NLA. Also reelected were vice president Joe Wayman, Forrest Keeling Nursery, MO, and secretary-treasurer Robert Siebenthaler (all for one-year terms). Frank Tomlinson was reelected director-at-large and Denny Church, William Doerler and John Korfhage, Jr. were reelected to two-year terms.

1981 Landscape business up 11%

Landscapers reported an average increase in their 1981 business of 11%, according to National Landscape Association's Eighth Annual Economic Survey. Geographically, the Northeast reported the highest increase of 18%, while the Great Lakes region posted the lowest gain—7%. Projections for the current year are an optimistic, albeit modest, 7%. The Western Plains region expects the largest surge in business (12%), while landscapers in the West (West Coast and Southwest) predict a slight increase of 1%.

The NLA study surveyed 1981 actual business and 1982 predicted business in residential renovation, new commercial, new residential and commercial renovation. The geographic areas studied were the Northeast, Southeast, Great Lakes, Western Plains and West. Nationally, 52% reported an increase in residential renovations, with the 81% of the Northeast and 70% of the Western Plains reporting gains. New commercial business increases were posted by 50% of landscapers in the survey. Again the Northeast led with 61% posting an increase in business. New residential business decreased at 54% of the landscape companies (37% increased and 9% remained the same). Commercial renovation brought up the rear with 49% reporting decreases, 20% the same and 31% increasing.

Projections for 1982 are hopeful but take the sluggish economy into account. The percentage of landscapers predicting increases in business are: residential renovation—43% (Northeast 64%, West-63%); new commercial—40% (West-70%); new residential—32% (West-59%); and commercial renovation—18% (Great Lakes-0%).

For 1981, the East experienced an above average increase in business while the rest of the country experienced below average increases. For 1982, the Western Plains and the Northeast are the most optimistic while the other regions of the country are least optimistic about landscape business.

NEWS *from page 12*

company's specialization in the marketing and retailing of sod directly to the homeowner. In 1981, the company sold more than 75 acres of sod and fertilizer. Richard Rogers, president of Pacific Green/Nunes, hopes that they will be able to use their marketing techniques to create consumer awareness and interest in sod.

Peggy and Jack Gribben have joined Pacific Green/Nunes

Kern Turf wins Rain Bird award

In other Rain Bird news, nine distributors received awards at the company's annual master-turf distributors meeting in Rancho Mirage, CA. Kern Turf Supply Bakersfield, CA, was chosen as the top distributor for its outstanding sales and marketing performance.

Kern Turf Supply was selected the top distributor of Rain Bird irrigation equipment based on outstanding sales and marketing performance with specific attention given to superior service, contractor development and effort, sales growth over a 12-month period and market penetration.

Awards were presented to Robison's Lawn and Golf of Grandview, MO, for contractor development; Lawn and Turf Inc., of Conyers, GA, for sales achievement; Automatic Rain Co., of Menlo Park, CA, for after-sales service;

Continues on page 16

For a Trencher and Backhoe don't settle for less than the Ditch Witch 2300.

Here's a combination that's hard to beat. A compact trencher with a backhoe that lets one machine do the work of two.

The 2300 has a 30-HP-class engine, a rigid frame for strength and stability and a 43,000-pound-test digging chain. Power steering and easy-to-reach controls mean easy operation.

The 2300 digs to depths of 5 feet (5 inches wide), depending on boom and chain set up. A hydraulic backfill blade is standard. The front-mounted A220 backhoe digs to depths of 5 feet.

So talk to your authorized Ditch Witch dealer. He can offer you more than the competition when it comes to maintenance, service in the shop or on the job or a full spare-parts inventory. So give him a call today. Find out how much more the 2300, the A220 backhoe and your Ditch Witch dealer can mean in productivity and profitability for you. Or call toll-free for literature: (800) 654-6481

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GOVERNMENT UPDATE

BY WILLIAM HOFFMAN

Urban Park Program to go to cities

The National Park Service (NPS), U.S. Department of the Interior, has appropriated $7.7 million in fiscal year 1982 for continuing existing innovative grants under its Urban Park and Recreation Recovery Program. Beginning in 1979, grants totalling almost $14 million have been given to 69 U.S. cities. The majority of these projects have provided recreation services for neighborhoods where none existed before: A facility for handicapped children in Pascagoula, MS; a tool and equipment loan service in Hartford, CT; a recreation park for senior citizens in Worcester, MA; a renovated service center in Lompoc, CA; a theater arts program in Louisville, KY; conversion of an abandoned sewage treatment plant into an environmental education center in Bellingham, WA; volunteer vandalism prevention and park awareness groups in Evansville, IN; truck mounted swimming pools for use in streets of New York; and conversion of post office building into a recreation and day care center in Wilmington, NC. This will probably be the last year of the program and this year's money should complete the projects and make them ready for city management.

Mediterranean fruit fly eradicated in Florida

What a difference a well-planned offense makes when handling an emergency insect infestation. Remember the political maneuvering last year over the use of malathion in California to control the Mediterranean fruit fly. It certainly made major headlines throughout the country and is still discussed in this year's political campaigns in that State.

Last August 1981, following the discovery of a number of Medfly larva in Hillsborough County, FL, officials of the U.S. Department of Agriculture and the Florida Department of Agriculture and Consumer Service authorized the spraying of the infested area 10 times with the pesticide malathion. In addition, an intensive trapping and fruit sampling system was initiated to detect the presence of any flies or larvae. No evidence of the fly has been found since the initial fly catches last year and since enough time has passed without flies or any evidence of infestation, the U.S. Department of Agriculture has declared the Medfly eradicated in this part of Florida. No such decision has been made in California as yet.

Satellite to assist landscape architects

A new satellite in the Landsat series launched in July which will provide aerial photographic resolution of land areas as small as one-half acre. The Earth Resources Observation System (EROS) of the U.S. Department of Interior will make this terrain analytical data available to anyone who wants it. Recently, landscape architects have been using both aerial image and the satellite computer-type data for large-scale land development and resource management. They can identify vegetation types, stream beds, underground water supplies, seepage areas, depth of the water table and the depth of soil over bedrock. With data from the new satellite, the landscape architects will be able to plan small-scale projects, such as, parks, golf-courses, college campuses, cemeteries, urban centers, or office parks without leaving the office. Space technology should help in achieving high quality designs joined with a respect for the environment.

NEWS *from page 14*

Artesco of Phoenix, AR, for an outstanding specification effort; A-1 Turf Irrigation Supply of Houston, TX, for market development; Florida Irrigation Supply of Orlando, FL, for outstanding contribution to the development of the Orlando Airport; and Indio Pipe and Supply Co., of Indio, CA, for sales and service to the golf course market.

IRRIGATION

Toro names Skidgel marketing director

The Irrigation Division of The Toro Co., Riverside, CA, has named John Skidgel director of marketing. Having served in marketing in the division for 20 years, he is a specialist in golf course and other large turf irrigation applications.

John Skidgel

Skidgel's new responsibilities will include the division's expanded marketing program and the introduction of new products. "We are actively planning our fiscal 1983 campaign, with even greater marketing support for everyone in the Toro family, from distributors to dealers to installers," said Skidgel.

SEED

Hertwig joins International Seed

Jack Hertwig has joined the staff of International Seed Inc. Halsey, OR, as a turf consultant. He previously worked for Germain's Seed Co., for 25 years as a turf consultant for the southwestern U.S., Mexico, Hawaii and California.

Hertwig is a member of the National Golf Superintendent's Association and a contributor to the Southern California Superintendent's publication. In recent years, he has expanded from golf into work with grounds managers of athletic fields including the Rose Bowl, Super Bowl and Orange Bowl.

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In 1915, *agriculture and turfgrass seed salesmen proudly stand by their Fords.*

NORTHRUP KING NEARS CENTURY MARK

This year, Northrup King Co. will celebrate its 98th anniversary.

It is a time to look back for most companies. Instead, Northrup King researchers are hard at work completing the introduction work on a host of new varieties of seeds, and new turf management techniques. This year also marks the beginning of a new structure for Medalist Turf Products, which serves the growing professional turf industry.

In 1884, Northrup King Co. was founded in Minneapolis, MN, on the banks of the Mississippi River. In 1915, its current headquarters were constructed in northeast Minneapolis. Since its beginning, the company has expanded its markets and product lines to serve a growing number of customers.

One of the company's expanding markets is served by the Consumer Products Division, which provide turfgrass products both to professional and home lawn customers.

The company, which has been selling grass seed since the turn of the century, first entered the professional turf field in 1970, when it introduced Medalist Brand overseeding products, the first overseeding products to ever be introduced to the southern golf course market. Overseeding has since helped keep southern golf courses in top playing condition over the winter months.

By the mid-70's, professional turf efforts were expanded to include sales of a variety of turfgrass products to professionals with a myriad of needs, in both warm and cool climates.

Today, Medalist Turf Products serve all segments of the professional turf industry. Northrup King grasses are used on golf courses, home lawns and boulevards, in parks and on athletic fields, at office sites, cemeteries and sod farms. In short, they are used for almost any professional turf need.

Part of the marketing strategy for Medalist Turf Products involves offering specialized turfgrass mixes designed for particular purposes, as well as selling straight seed varieties.

The Medalist Turf Products department was given its new name and structure just this year, to reflect its growth in serving turfgrass professionals. Currently, the company's market stretches across the

Continues on page 20

THESE INSECTS HAVE ONE THING IN COMMON

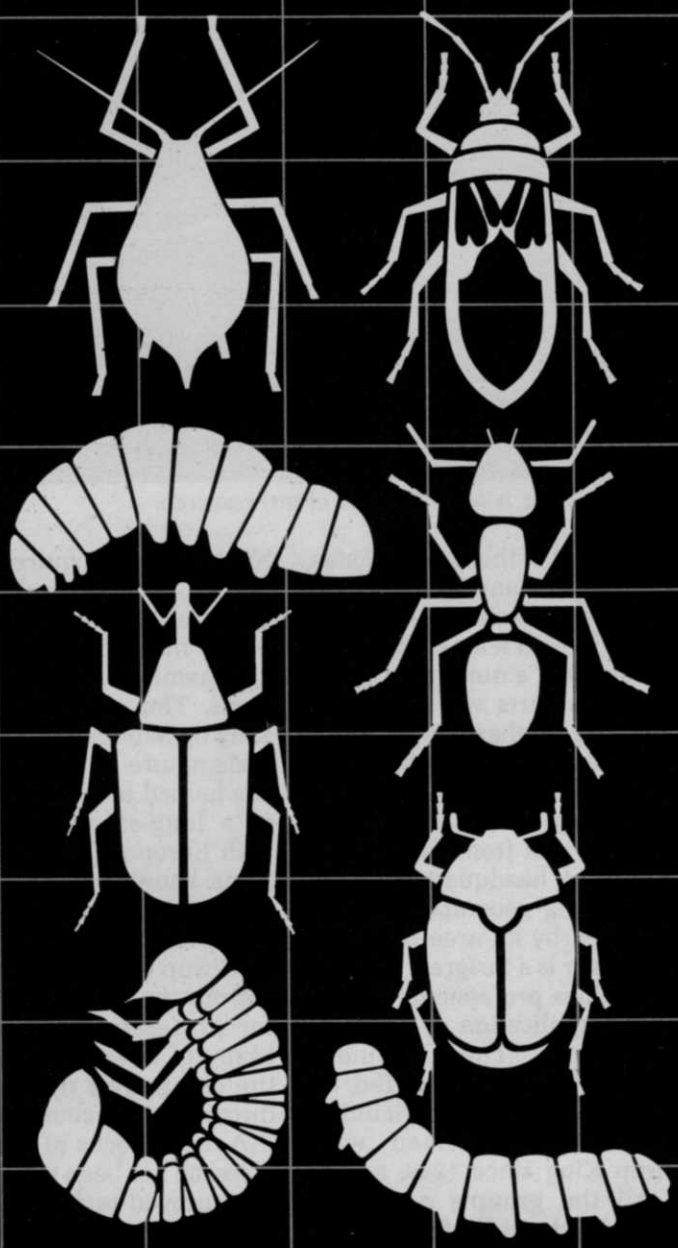
They now can be controlled by a NEW effective carbamate insecticide *TURCAM*®

TURCAM Insecticide offers the professional turf and ornamental care specialists a new effective broad spectrum insecticide for the control of a wide range of ornamental and turf pests including gypsy moth, Eastern tent caterpillar, certain scale insects and weevils, Japanese beetles, sod webworms, chinch bugs, mole crickets, white grubs and various nuisance pests such as fleas, wasps and fireants.

In addition to controlling these and many other pests, TURCAM

- Will not damage your ornamentals
- Will not get tied up in your turf thatch
- Is odorless
- Is suitable for use in Liquid Systems.

For further information on TURCAM including full labeling and recommendations for use please contact your local distributor or write to the address below.



TURCAM®

Broad Spectrum Insecticide

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ANNIVERSARY *from page 18*

Howard Kaerwer *is NK's director of turf research.*

southern coast of the United States, into midwestern and western markets. The departmental reorganization brought with it a new distribution system. For a number of years, marketing efforts were concentrated in the southern overseeding market. The new approach to marketing helps bring together all areas by providing direction and increased services from the company's national headquarters. Each Northrup King geographical market is served by an area manager. This manager is a turfgrass specialist who brings professional expertise to the application of Medalist Turf Products. The Consumer Products Division is headed by Vice President Howard Schuler. Schuler, who has been with Northrup King since 1949, supervises all the group's activities, including Medalist Turf Products.

There have also been some notable corporate changes in the past twenty years. In 1976, Northrup King Co. was acquired by Sandoz, Ltd., a Switzerland-based firm. This multinational company has interest in pharmaceuticals, dyes, agrichemicals and specialty food items. The purchase of Northrup King by Sandoz reflects the worldwide nature of the seed trade, and has helped to enhance the company's long-standing relationship with European seed and breeding firms, known as pioneers in the development of new grass varieties.

During the past two decades, Northrup King has introduced numerous improved grass varieties for professional and home use. Many of these were developed at the company's research stations throughout the country.

A major focus of the company's research has been the development of improved turfgrasses which not only have superior disease and insect tolerance, but which actually require less maintenance. In today's energy conscious market, newly developed turfgrasses which need less mowing, watering and fertilizing, have met with tremendous success.

Research focusing on the environmental needs of diverse markets led to the introduction of a new, salt-tolerant grass variety, "Fults" *Puccinellia distans*, three years ago. This turfgrass performs excellently in saline and alkaline soil. It has stood up to testing under conditions ranging from northern boulevards, where use of salt as a de-icer kills most turfgrasses, to testing on coastal golf courses, which often experience the problems associated with salty soils.

Twenty years ago, Northrup King research led to the introduction of NK100, the first fine-leaved perennial ryegrass. This revolutionary variety debuted in 1962 as a vastly improved alternative to the coarse perennial and annual ryegrasses available at that time. Today, its well-received successors include Eton and NK200, as well as Delray and Goalie perennial ryegrasses.

Northrup King was one of the first companies to introduce improved bluegrasses, when it came out with Prato Kentucky bluegrass in 1962. This bluegrass was followed by two additional improved varieties, Parade and Rugby. These varieties were selected for their exceptional color, and improved disease and insect tolerance.

Low-maintenance, hardy fine fescues, which serve a variety of purposes for the professional and homeowner, have also been successfully improved by Northrup King. These drought-tolerant grasses have performed extremely well under low fertility conditions.

In addition to Medalist Turf Products for the professional turf market, the growing Consumer Products Division serves the home lawn, garden and horticultural market with a complete line of grass seed mixtures, fertilizers, vegetables and flower seeds.

Another Northrup King Co. group produces a variety of agricultural crop seeds ranging from corn to cotton, soybeans to sunflowers.

The past twenty years have seen particularly strong growth for Medalist Turf Products. **WTT**

WE GEARED OUR GANG TO LAST.

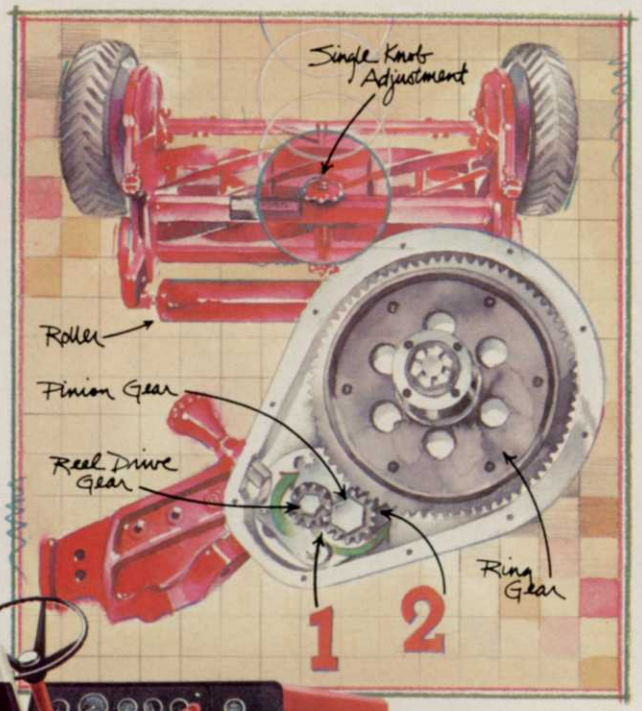
AND CUT YOUR COST OF CUTTING.

From day one, Toro has engineered the kind of gang mower you want for high acreage formal cutting.

A mower that keeps you cutting. Gets the job done.

Like our Spartan® gang mower, direct descendant of Toro's first pull type reel mower 60 years ago, and now the heart of our 7 or 9 unit Parkmaster® and 3, 5, 7 or 9 unit Universal frame.

Its durability is exemplified by the gear drive we use to transmit power from the wheels to the 5 or 7 blade reel.



Unlike the drive of one of our best known competitors, for example, it has few moving parts and just two major points of contact. That means less downtime, fewer repairs and parts replacements.

And, besides its time proven durability, this simple gear drive system gives you what you want most in formal cutting. A more consistent quality of cut.

And Toro gears its gang with other features that keep you cutting. Like single knob bedknife-to-reel adjustment, a perfected roller system, and convenient height of cut adjustment from ½" to 2½", depending on wheel combinations.

Call your Toro distributor. He'll tell you more about our Spartan gang mower and its working partners. Parkmaster, for up to 18'6" widths of cut. And Universal frame, for 7' to 21' widths. He'll show you how Toro quality can cut your cost of cutting.

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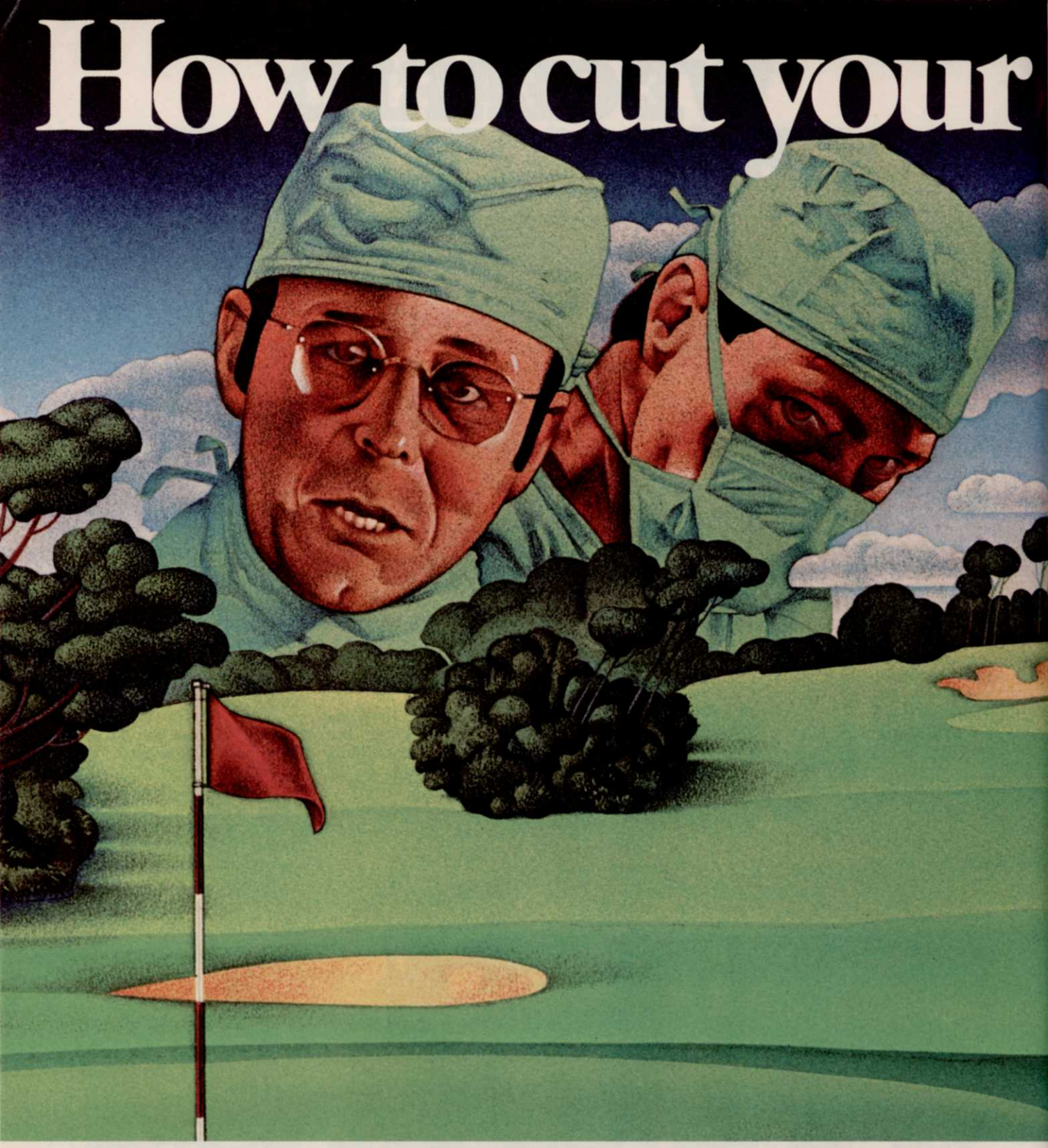
How to cut your



Long-lasting Chipco® 26019 fungicide is as good for your budget as it is for your turf.

Because it gives you the longest residual activity, you'll need fewer treatments on greens and tees with Chipco 26019. And fewer treatments on fairways, where it controls diseases longer...from 21 to 28 days. So for every treatment you eliminate thanks to Chipco 26019, you'll save up to $10 an acre in fuel and labor!

And Chipco 26019 is strong medicine. No other fungicide gives better control of the major turf diseases. Chipco 26019 is effective on Helminthosporium

operating costs.

Please read label carefully, and use only as directed.

Leaf Spot and Melting Out, Dollar Spot (including benomyl-resistant), Brown Patch, Fusarium Blight, Fusarium Patch (Pink Snow Mold), and Gray Snow Mold.

For healthier turf on greens, tees and fairways – plus a healthy cut in operating costs – control diseases with long-lasting Chipco 26019. It's just what the doctor ordered.

Rhône-Poulenc Chemical Company, Agrochemical Division, Rhône-Poulenc Inc., Monmouth Junction, NJ 08852. RHÔNE-POULENC

CHIPCO 26019.
It's strong medicine.

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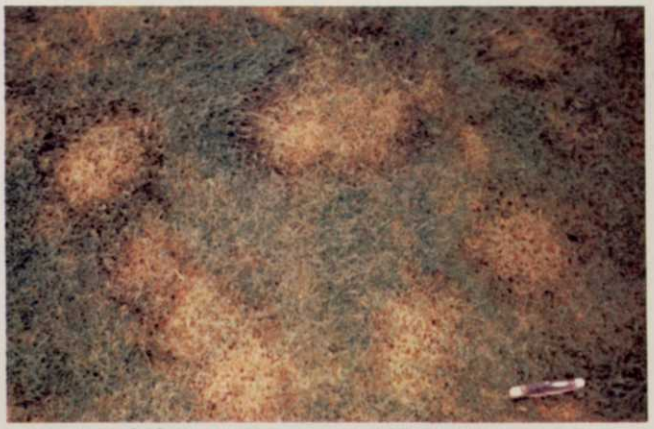
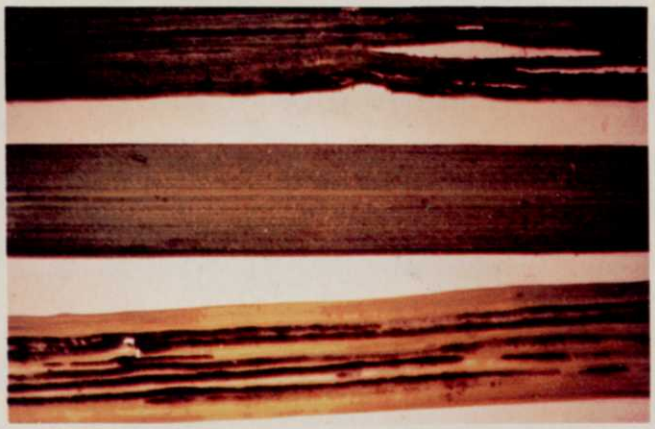
LANDSCAPE MANAGERS QUIETLY INCORPORATE TURF DISEASE GAINS

By BRUCE F. SHANK



Fusarium Blight



Stipe Smut

Pythium Blight

Advances in turf disease control have taken place so slowly that progress made by landscape managers and golf course superintendents has gone unnoticed. This progress is as much adaptation of cultural practices and new turfgrasses as it is the release of new fungicides.

Disease control is without a doubt one of the most complicated areas of landscape management. Even the pathologists don't totally agree with each other. Rather than seeking simple solutions, landscape managers have evaluated entire maintenance programs to reduce disease incidence. They are more careful about excess nitrogen, mowing heights, irrigation schedules, and turfgrasses used. Disease-prone turfgrasses have been slowly replaced by renovation or overseeding with resistant turfgrasses. The use of turfgrass mixtures over monocultures alone has solved many disease problems.

Thatch control, improved drainage, and well-timed irrigation added to other maintenance practices discourage disease. Fusarium Blight and Pythium Blight have been reduced significantly by changes in cultural practices. The severity of other diseases has been reduced also.

"Fungicidal control still represents the most common and effective means of producing a rapid solution, especially on golf courses," says Phil Larsen, professor of plant pathology, Ohio State University." Once the symptoms of turf disease appear, it is often impossible to provide short-term remedies required by resorting strictly to cultural practices and reestablishment with disease resistant turf cultivars."

Diseases

Weeds Trees & Turf asked a number of turf pathologists to comment on the severity of turfgrass diseases. We asked them to separate serious, long term diseases from less critical, short-term ones.

B.G. Joyner, director of Chemlawn's Plant Diagnostic Laboratories, Worthington, OH, identified the following as long-term diseases of cool-season turf: Fusarium Blight, Stripe Smut, Pythium Blight, Helminthosporium Melting-Out, Yellow Patch, and Fairy Ring. Short-term diseases selected by Joyner are Rhizoctonia Brown Patch, Dollar Spot, Helminthosporium Leaf Spot, Powdery Mildew, Red Thread, Rust, Snow

Continues on page 26

Subdue.

Controls Pythium blight and damping-off.

No other fungicide works as well as Subdue® against Pythium damping-off and blight because only Subdue has two-way action against these diseases.

First, Subdue gives you systemic control that protects grasses from the inside out. Second, it works in the soil to control Pythium by contact action. Two-way action that keeps turf healthy.

In established turf, Subdue is an ideal preventative treatment for Pythium blight. Plus in newly seeded or overseeded turf, you get protection from Pythium damping off and blight.

Subdue provides effective control for 10-21 days. Longer residual control than other Pythium fungicides. So Subdue can help you reduce application trips and labor costs. But just as important, Subdue fits your total program because it's compatible with most other fungicides.

Subdue gives you protection like you've never had. Subdue, the only fungicide for Pythium with two-way action.

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Molds and White Patch.

Larsen ranks Dollar Spot, Pythium Blight and Brown Patch as serious on bentgrass and Red Thread and Pythium Blight as serious on perennial ryegrass and fine fescue. He sees Fusarium as the major Kentucky bluegrass disease with Leaf Spot and Melting Out as other major problems on bluegrass. Larsen points out his results are for the North Central United States.

There are 14 diseases of consequence in cool-season turf. If you think you have a disease problem, you can consider these diseases first and chances are you'll find the disease organism. It is very unlikely you'll be confronted with an oddball disease like C-15 Toronto bentgrass decline, unless of course you have Toronto bent in the Chicago area.

We could write pages on how to identify a particular turf disease. Instead, contact local extension or your fungicide distributor for exact identification. Manufacturers have excellent charts showing disease symptoms.

The serious warm-season diseases, according to Joyner, are Centipede Decline, Fairy Ring, Brown Patch, Nigrospora Stolon Rot, Pythium Blight, St. Augustine Decline, and Spring Dead Spot. Nematodes are related to diseases in warm-season turf.

Cool Season Diseases

Severe, Long-Term

Fusarium on Kentucky Bluegrass
Stripe Smut on Kentucky Bluegrass
Helminthosporium Leaf Spot on Kentucky Bluegrass
Dollar Spot on Kentucky Bluegrass and Creeping Bentgrass
Rhizoctonia Brown Patch on Kentucky Bluegrass, Perennial Ryegrass, and Creeping Bentgrass
Pythium Blight on Perennial Ryegrass and Fine Fescue
Red Thread on Perennial Ryegrass and Fine Fescue
Yellow Patch
Fairy Ring on Creeping Bentgrass

Less Severe, Short Term

Powdery Mildew on Kentucky Bluegrass and Fine Fescue
Snow Molds on Common Grasses
Rust on Kentucky Bluegrass and Creeping Bentgrass
White Patch on Tall Fescue

Short term, warm-season diseases include Dollar Spot, Gray Leaf Spot, Helminthosporium diseases, and Rust.

Brown Patch and Pythium are effectively controlled with fungicides in the South. More information is needed on the other diseases says Joyner. The only control for St. Augustine Decline is resistant varieties of St. Augustine.

Cultural Practices

"There is no doubt preferred cultural management procedures can reduce the need for fungicide applications to control some of the diseases," Cornell turf pathologist Dick Smiley says. "But management and use considerations do not always enable idealistic procedures to be used. For example, if red thread on perennial ryegrass is a problem primarily because the turf is deficient in nitrogen, the solution is straight forward. Either a fertilizer or a fungicide can be applied to solve the problem. However, overstimulation with nitrogen may increase the tendency for severe Pythium outbreaks. Or, if red thread is a problem because the soil and air temperatures are low, the control approaches are narrowed to fungicides."

The logic can be complicated to solve a disease problem. Landscape managers have chosen in many cases to eliminate disease-encouraging conditions where possible to reduce the complexity of a disease problem. Then, if weather or use conditions force a disease problem, the solution is less complicated.

Alteration of cultural practices can reduce disease incidence and the need for fungicide applications. Larsen recommends thatch removal, aerification and adequate but not excessive fertilization to encourage good plant health which enables the plant to resist disease under normal conditions. "Providing proper air movement and soil drainage to reduce atmospheric moisture and surface water are very effective in suppressing disease severity for summer diseases such as Pythium blight, brown patch and dollar spot."

"Turf should be watered thoroughly to promote good plant growth but the timing should be such that it will not cause free water to collect on leaf surfaces for prolonged periods which would promote fungal growth," Larsen says.

Warm Season Diseases

Severe, Long-Term

Centipede Decline
Rhizoctonia Brown Patch
Nigrospora Stolon Rot
Pythium Blight
St. Augustine Decline
Spring Dead Spot

Less Severe, Short Term

Dollar Spot
Gray Leaf Mold
Helminthosporium Diseases
Rust

"In instances where there are chronic disease problems over a period of years and good cultural practices do not provide satisfactory results, I believe establishment of disease-resistant cultivars is a practical, long-term, cost effective solution. Unfortunately, we do not have disease resistant cultivars available for all disease problems."

Joyner points out renovation may be needed for reasons other than disease. It also solves excessive thatch, large damaged or dead areas, poor or compacted soils, drainage problems, and other problems related to less advanced turfgrasses.

Whereas a maintenance contractor may occassionally work with a disease problem, golf course superintendents would find it hard to imagine a course without some disease problems. Cultural practices, disease resistant turfgrass cultivars, and new fungicides have made the greatest impact on disease control.

Extended effective life of fungicides and blending different fungicides are providing longer control of a wider range of diseases.

Except for the occassional fluke, landscape managers have a good handle on turf diseases. They have wisely put to use new fungicides and new improved turfgrass cultivars, in addition to improving cultural practices. The complicated problem has been solved to a great degree. **WTT**

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Think of all the places unsightly weeds and brush can plague your golf course. Around greens. In rough. In and around sandtraps. Near the clubhouse and tennis courts. Along cart paths, sidewalks and driveways. Along fencerows. Fortunately, there's one herbicide you can use in *all* these key problem areas—Roundup.®

No other herbicide is as effective or versatile as Roundup for control of tough emerged weeds and brush—wherever they grow. Sprayed on the foliage of actively growing labeled weeds, Roundup herbicide goes right down to the roots and controls the entire plant. So treated weeds won't grow back.

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This deck and flagstone patio with gazebo in Fairfax Station, VA, was designed to accommodate several hundred people (in conjunction with the pool area). Parsons and Wewerka Landscape Contractors, Woodbridge, VA, eliminated steps in the patio area and designed the flagstone walks to carry the overflow of people.

This Oakmont, PA-landscape brought a much-needed formality to the residence's entranceway. GWSM, Pittsburgh, PA, designed the stone entrance court to direct the guest's eye towards the front door and away from the kitchen entrance. The screening effect of hemlocks worked very well towards this end.

Green Brothers Landscaping Co., Smyrna, GA, show how judicious use of dwarf and cascading plants can expand a small area. The novel use of plantings and addition of a brick patio created a number of conversation areas in the backyard of the Atlanta, GA-home.

Schlick Landscaping, Huntington, NY, had a scant 10 weeks to complete this elegant pool and cabana in Oyster Bay Cove, NY. Schlick performed all carpentry, masonry and landscaping (planting, grading, irrigation, and sodding), while, as the general contractors, coordinated the duties of numerous subcontractors.

Effective night lighting is one feature of this Theodore Brickman Co., Long Grove, IL, landscape that enabled it to pick up an NLA award. The entertainment area was designed to accommodate 60 to 80 people yet stress privacy and low maintenance.

AWARD WINNERS PROVIDE SOLUTIONS FOR EFFECTIVE RENOVATION

The challenge is to make better use of outdoor space by converting decorative landscapes into useful ones.

Updating or renovating existing residential landscapes is helping landscape architects make up for lost new construction business. This condition was reflected in the 1982 residential landscape awards.

Housing starts remain stalled below the one million per year mark. The number of new residential landscape jobs has decreased slightly from 1981. Landscape contractors have compensated for lost new construction with creative renovations.

The following winners, selected from Associated Landscape Contractors of America (ALCA) and National Landscape Associatio' (NLA) contests, are renovations.

"Renovations are a more vigorous part of the landscape business," says Denny Church, D.R. Church Landscape Co., Addison, IL. Church was the chairman of the NLA competition. "Competition was very stiff. Entries that used to win awards are now being thrown out."

Dr. William Gould, another NLA judge and professor of horticulture at the University of Maryland, reflects on the competition, "There is more updating of established landscapes where owners want to be outdoors and don't have a patio or pool. The challenge is to make better use of outdoor space by changing decorative landscapes into useful space."

A recent NLA survey revealed its members have successfully increased residential landscape renovations as they have lost new construction. More than half of NLA members increased residential renovation, says NLA Director Ray Brush, compared to a third increasing commercial renovation work. Emphasizing maintenance has also replaced some new construction business.

Church and Gould offer these tips to future award winners. "Conical evergreens are overused," says Gould. "However, more contractors are including plant material that stays within bounds without excessive pruning. The use of lower maintenance plants is a great step forward."

"The economy has forced an emphasis on low maintenance plants," Church said. "Continuity was the big factor in the competition where an existing landscape was updated." You can't throw out the old plan. You have to work with it when you make improvements. "Borrowing ideas from other landscapers is common," says Church. There is no need to reinvent the wheel every time if you have an effective solution to a common landscape problem.

The potential for renovation far exceeds new construction. The vast majority of residential landscapes lack imagination. Homeowners may not realize the potential their property has for natural impact. The award winners presented here may lend effective solutions to landscape renovation problems in your area.

Site: Evanston, IL
Landscaper: Theodore Brickman Co., Long Grove, IL

In renovating the landscape at Evanston, Theodore Brickman Co. was charged with designing an entertainment area to accomodate 60 to 80 people with low maintenance and privacy as top priorities. The client had recently added a garden room extension for entertaining, which was surrounded on three sides by adjacent houses. "One of our first jobs was to screen out the houses by planting 12- to 15-foot white pines and river birch trees," said Landscape Architect Craig Anderson. "That gave us a framework of privacy."

The lawn in the small backyard was removed. In its place ground covers, perennials and rhododendrons were planted. "Once they're installed they come up every year with very little maintenance," noted Anderson. He added that while ground covers are very useful in small, intimate areas such as backyards and courtyards they can be misleading in terms of maintenance. A lot of maintenance is required until they fill in and **then** the maintenance needs decrease.

To extend the usefulness of the garden, night lighting was installed. "In our climate, five months out of the year you are not using the garden, it's strictly visual," said Anderson. "Lighting lets you enjoy the night, particularly after a snowfall and it was great for entertaining." The lighting was done in three different ways. About 30 ft. above ground the canopies of the trees were uplit. Little pockets of light were achieved with mushroom lighting and uplights on the ground that featured the river birch trees were also used.

Anderson noted that with high interest rates, renovation landscaping is becoming a bigger trend. He pointed out that in landscapes that were designed a long time ago, the little trees have become major elements in the garden, the lawn is established but all the detail plants that are now 20-30 years old no longer serve their purpose. The de-

Continues on page 30

tail plantings is the area that is most often ripe for renovation. Additionally, one good way to gain entry to renovation jobs, according to Anderson, is to make contacts with custom builders and architects who specialize in those types of jobs.

Site: Oakmont, PA
Landscaper: GWSM, Inc. Pittsburgh, PA

The five-acre Oakmont, PA residence had been developed with the use of master plan since 1975. The owner had very strong feelings about how each piece of landscaping would affect his vistas. "The front of the home needed formality to draw the guests into the entrance," said GWSM's Dan DiMucci. "Even working with the master plan, it took a while to come up with that idea and suggest it to the owner."

Previously the entrance was a rectilinear patio of quarry tile in front of the facade and the plantings lacked continuity. GWSM decided to inject the plantings with added seasonal change. Rhododendrons, azaleas, dogwood and some later blooming deciduous plants were specified. Originally, a guest's eye was directed to a portico off to the side and not the main entrance. "We used hemlocks in various sizes to totally screen out that portico and redirect the visitor to the entrance circle," said DiMucci.

The contracting was begun in October and lasted for six months. To eliminate possible bad weather delays the client (himself a general contractor) built tents and stocked them with portable heaters to continue the paving in poor weather. The paving was done by five men (plus a foreman) while the planting required four men.

Site: Atlanta, GA
Landscaper: Green Brothers Landscaping Co. Smyrna, GA

The owners of this Atlanta residence are amateur horticulturists who didn't want their plantings to be hidden below the steep grade that cuts through the yard. Allen Struletz of Green Brothers, had the task of opening up and unifying the long and narrow space. His solution achieved this, while leaving the plantings accessible to the owners and creating a site that would include a greenhouse that was to be built later.

Crosstie planters were used to raise the plantings on the lower portions of the site to a level where they were visible from the house. The raised planters opened up the space so that the land area that had previously disappeared from view down the steep hill behind the house was now visible. A stepping stone pathway winds through the property in a serpentine fashion, tying together aspects of the design from the private conversation area near the house to the children's play area and to the back of the landscaped area.

The combination of dwarf plantings and cascading plants softens the retaining walls, and the flow of circulation adds an illusion of space to a small area. The choices of plant materials were in keeping with the owners love for flowers. In the planters and the open area, combinations were used of dwarf nandina, carissa holly, daylily, azalea, variegated liriope cotoneaster and forsythia. For the shady spots, Struletz chose variegated holly fern, aspadistra and cleyera.

Site: Oyster Bay Cove, NY
Landscaper: Schlick Landscaping Inc., Huntington, NY

Ron Schlick of Schlick Landscaping was contracted to create a pool and cabana for the oriental-style yard that his firm had been developing for the past six years. Schlick took the natural oriental theme of the rest of the property and extended it with a pagoda-style cabana and a naturalized pool in black marble surrounded by brick. The fully equipped cabana was insulated and climate-controlled so it could double as a guest cottage. The frame of the building was extended with beams to blend with the setting and give the impression of greater size.

The plantings were simple and natural, in keeping with the delicate theme of the yard. Evergreens such as dwarf garden juniper, a low spreading pine and weeping spruce highlighted the pool. Near the spa, they planted golden bamboo in large plastic containers to prevent it from spreading, along with pachysandra, ferns, maidenhair, daylily and columbine. Certain areas around the pool were accented with tulsans weeper and dwarf eastern white pine.

Schlick and his crew had to do the construction while directing 19 subcontractors around the site to prevent damage to the earlier plantings. Schlick hired one man whose only job was to direct traffic in and out of the work site and limited parking areas. As the job neared completion, the crews had less room to maneuver. Schlick explained, "our firm literally had to back out of the area as though we were painting ourselves out of a room."

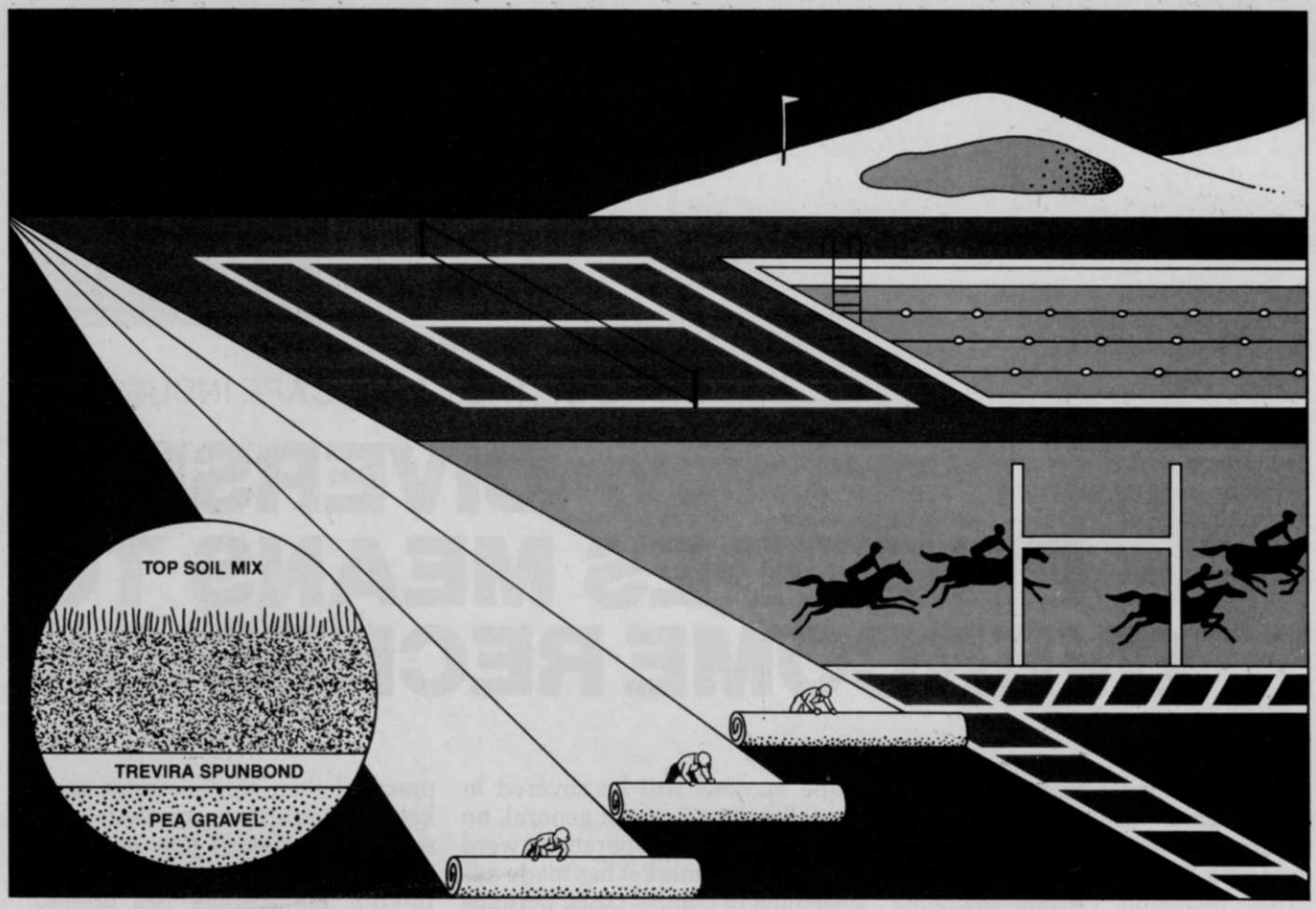
Site: Fairfax Station, VA
Landscape: Parsons and Wewerka Landscape Contractors Woodbridge, VA

The owner of this property had a simple request of contractor Richard Wewerka and designer Philip Cohen: to be able to sit at his kitchen table and have a view across the pool through a gazebo to his horses in the pastures beyond, all within four weeks of the starting date. In accepting the contract, the firm of Parsons and Wewerka had to construct between 800 and 900 sq. ft. of flagstone patio and walkway and 700 sq. ft. of redwood decking, the gazebo and a retainer wall near the barn. Additionally, 250 ft. of underground culvert to drain the pasture and parking areas, the adjacent plantings and the renovation of the plantings in the front of the house had to be installed.

All of the phases of the project had to be done simultaneously to finish the job within the time limit.

The gazebo was done without sheathing or tarpaper under the roof, so the cedar shingles are visible from both sides, tying the structure in with the wood decking and providing an interesting contrast on the inside against the white wood of the frame. The foundation of the gazebo eventually had to be raised to accommodate the desired view.

The areas around the gazebo, tennis courts, pool and the front of the house were planted in beds combining annuals with perennials such as blackeyed susan, hosta lilly, viburnum, variegated hosta impatiens crepe myrtle and boxwoods. **WTT**



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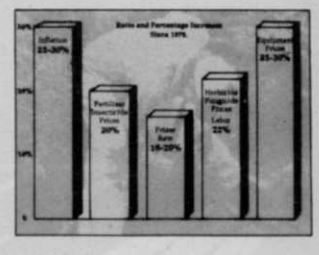


STATE OF THE LANDSCAPE INDUSTRIES

DIVERSITY PROVIDES MEANS TO OVERCOME RECESSION

By BRUCE F. SHANK

Despite interest rate, inflation, and construction problems, the landscape market's diversity has provided a fair amount of insulation from recession. Certain segments and regions of the industry are experiencing significant cutbacks, but overall the landscape industry has adjusted skillfully and faces moderated growth rather than losses. The focus is on cost control.

Weeds Trees & Turf conducted seven different surveys to gauge the impact of recession on the various segments of the landscape industry. Data from the National Golf Foundation, the National Landscape Association, and other industry groups were also used in the writing of this State of the Landscape Industry Report. Association officers were polled for their account of the state of their market segments.

The two most common adjustments made to control costs were reduction in staff and delaying equipment purchases. Two thirds of the landscape contractors indicated a reduction in credit use. All segments reported use of lower maintenance plant material and chemical trimming to lower costs. Both golf course superintendents and landscape contractors are switching to larger equipment to cut labor time.

Other cost cutting techniques and conditions of specific landscape markets will be covered in the following pages. In general, no drastic changes in operations were reported. The market has made adjustments to control costs, perhaps something it could and should have done before. No one was caught by surprise. Most problems were anticipated and adjustments were made before business health was threatened.

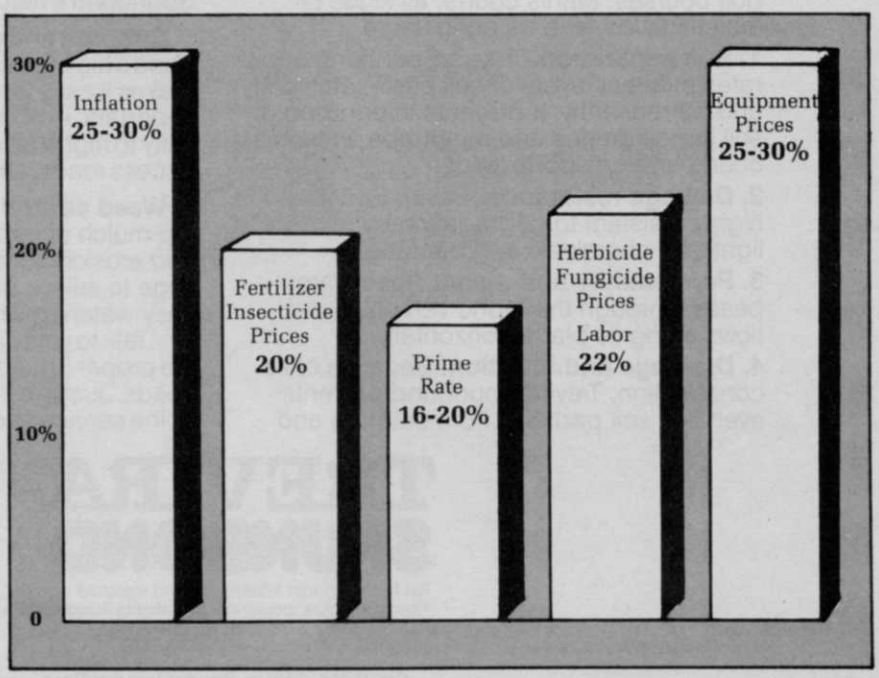
Diversity within the landscape market made adjustment more practical than single-service markets. Construction oriented landscape firms placed new emphasis on renovation and maintenance. Interior landscaping has offered shelter for some companies.

Persons working from a set budget, such as golf course superintendents and public landscape managers, are evaluating maintenance efficiency. They are challenging the status quo and trying

Continues on page 34

TABLE 1.

Rates and Percentage Increases Since 1979.



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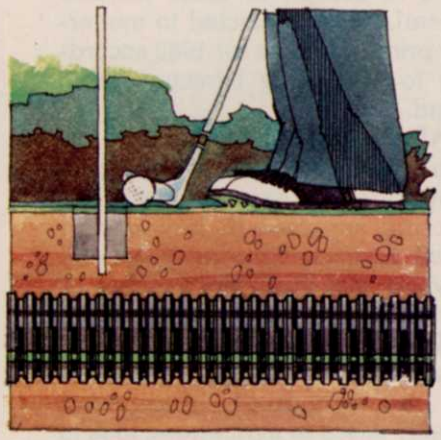

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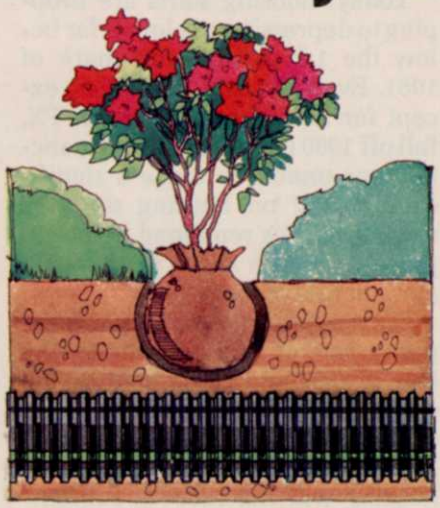

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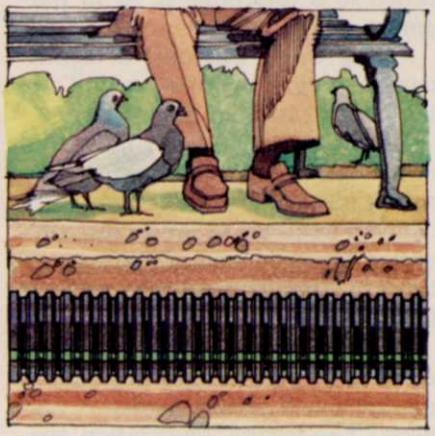

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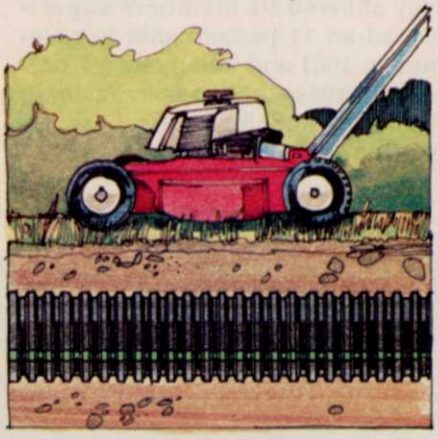

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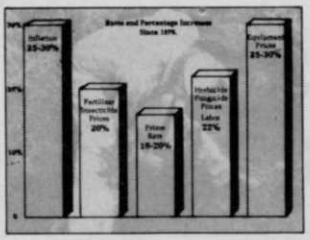

STATE OF THE LANDSCAPE INDUSTRIES

methods to cut maintenance costs. Low maintenance plant material, more efficient equipment, and better control of irrigation will pay dividends in the future.

Both landscape and golf course architects are recommending conversion to low maintenance material. Those who maintain the landscape after design changes question the practicality of some of the changes, but have started to incorporate maintenance saving ideas on an increasing scale. The inclination to test the water before diving in is a characteristic of landscape managers which has protected them from serious problems in the past year and a half.

Whereas the sod market is getting hit harder than other landscape markets, the lawn care market continues to chug along at 24 percent growth. Stagnant construction has caused almost a 50 percent decrease in sod sales. Cost control has kept the remainder of the landscape market even or slightly ahead of inflation. The trend is likely through 1982.

The Business Climate

1982 will mark the second year of very high interest rates and more than five years of double-digit inflation. Landscape businessmen have been aware of these financial facts. What they haven't known is how these factors cause local concerns.

Until construction contracts dried up in late 81, we were dealing with regular, large increases in the cost of labor, equipment and chemicals. We learned to live with those. The landscape market was also adjusting to drought in many parts of the country. That too was handled without major losses.

But, in 1980, when interest rates increased with the Federal Reserve Bank's tight money policy, the credit market started getting out of hand. Not even the bankers were sure what to do.

Today, housing starts are dropping to depression era levels far below the 1.1 million unit mark of 1981. Even the Sun Belt cities, except for Austin and Houston, TX, fell off 1980 levels. Creative financing was unable to make a significant impact on housing starts as mortgage rates remained above 16 percent, quite a shock from the 10 percent rate of early 1980.

Conservative estimates place the prime rate at 14.5 percent by the end of 1982 and 13 percent by the end of 1983. It is currently 16.5 percent. The National Association of Home Builders has announced housing will not recover substantially until mortgage rates come down to a tolerable 12 to 13 percent.

Using these theories, a significant recovery in housing will not take place until late 83 or early 84.

Regional problems in industrial cities where automobile manufacturing and steel are dominant, are causing declines in landscape revenues. Unemployment figures continue to climb beyond the 9 percent mark.

In the midst of this bleak environment, only the sod production market faces severe losses. A National Landscape Association survey showed its members experienced an 11 percent gain in revenue in 1981 and anticipate a 7 percent increase for this year. Factor in inflation, and NLA members are staying even.

Growth has to come from a competitor as new business shrinks. But, no one is willing to play share of market games. The airlines provided a good example of price cutting to gain share of market. After years of inflation-plus price hikes, the thought of freezing prices is hard to accept. In some markets ChemLawn has elected to moderate price increases for 1982 according to Marketing Director Ralph Lund.

After getting in the habit of annual price increases, suppliers may moderate increases at best. Expecting supplies to increase in price, landscape businessmen will have to pass along the increase or cut costs by increasing efficiency.

The landscape market has the advantage of being moderately recession-proof. Companies largely based in agriculture, look to landscaping and golf courses when agriculture goes flat. The low volume, higher profit margin of this industry pays dividends when the high volume, low profit margin of agriculture is threatened. In good times, the landscape market is overshadowed by agriculture. In hard times, the landscape market is a welcome customer.

A recent report by Charles H. Kline & Co., sets the value of chemical products purchased by the landscape industry at $1.1 billion. Compared to the multi-billion dollar ag-chem market the landscape business may seem small. After considering the better profit margin and increased stability of the landscape market, more chemical companies are establishing specialty product divisions this year to mar-

Continues on page 41

TABLE 2.

Cost Cutting Measures by Market

	Percent of Respondents			
Area	**Golf**	**Landscape**	**Sod**	**Parks/Schools**
Delay Equipment Purchase	54%	48%	81%	13%
Reduced Labor	50%	—	73%	51%
Increased Trim With Chemicals	—	41%	—	66%
Cut Fertilizer Use	30%	—	49%	42%
Cut Herbicides Use	18%	7%	20%	31%
Cut Chemical Inventory	44%	22%	—	—
Add Low Maintenance Plant Material	—	70%	—	50%
Use Growth Regulators	—	20%	—	17%
Use Larger Mowers	—	24%	—	77%

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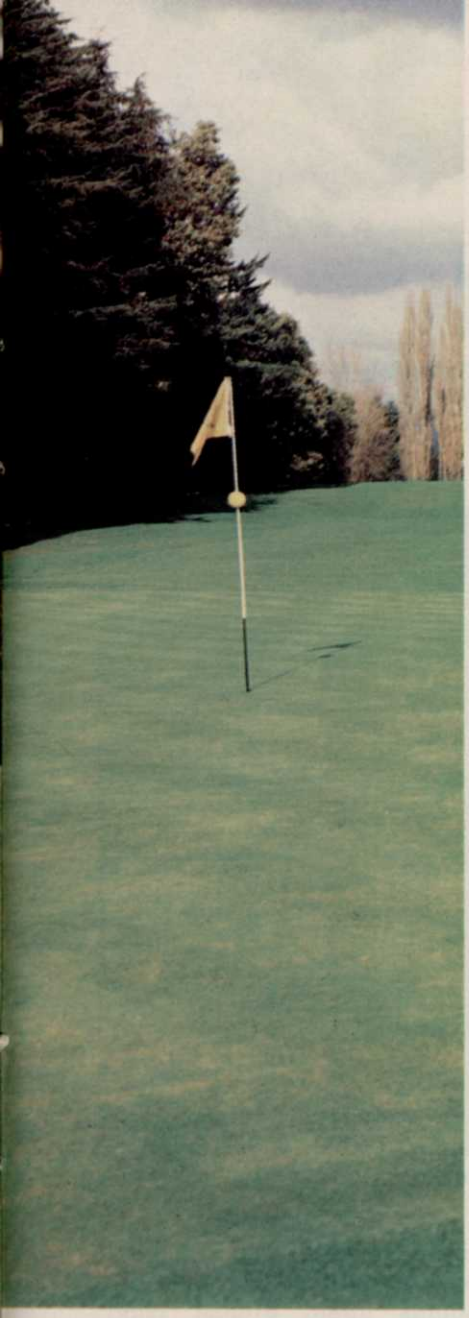

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HOLLIES OFFER WIDE RANGE WITH BRIGHT FOLIAGE, FRUIT

By DOUGLAS CHAPMAN

Shrub forms of holly may fill a unique niche in the landscape. Three species which are underused but may be of significant value for not only the Northeast but also throughout the Midwest include Japanese Holly, Inkberry, and Michigan Holly. They show good tolerance to urban conditions and should be tried.

Japanese Holly *(Ilex crenata)* is an extremely dense, twiggy shrub which is somewhat rounded with a height and spread of 6 to 10 ft. The leaf is oblong to round, slightly thicker than boxwood but a dark lustrous, almost blue-green. Its year-round rich dark green color makes it particularly effective as a hedge planting, a specimen, or in mass plantings for large area landscapes. Japanese Holly will grow well in sun or shade but prefers sites protected from March's southwest sun and wind. The soil should be a well-drained loamy sand. Disease and insect problems are almost insignificant with leaf miner causing some blemish. Don Wyman reports that Japanese Holly and Inkberry have great potential as they are extremely tolerant of urban conditions, e.g. air pollution. The only way to purchase Japanese Holly is to know the cultivars and see which one fits your climatic conditions.

I. crenata 'Convexa' is one of the hardiest forms. It has a somewhat vase-like to upright mounding habit, reaching 8 to 10 ft. in height with an ultimate spread of 10 to 12 ft. Its dark green shiny leaves are almost waxy-like. 'Black Beauty' Japanese Holly, a selection by Girard Nursery, Geneva, Ohio, is noted for its compact habit, dark green leaves, and its ability to take heavy pruning. It should be noted that all *I. crenatas*, including the species, take well to formal and/or heavy pruning. Dirr suggests that 'Black Beauty' is the hardiest of all Japanese Holly. 'Green Island' Japanese Holly is a slow growing, low spreading form with bright, almost lime-green foliage. It is somewhat open, being considerably broader than tall and reaching almost 3 to 4 ft. in height.

Michigan Holly is a deep, rich green in the summer, lustrous black after freezing, and with red fruit from August through January.

Inkberry *(I. glabra)* is an extremely hardy native ilex. It prefers a sandy or organic-sandy soil with an acid pH (5.0-6.0). Inkberry is native from Nova Scotia to Florida. It must be stressed that provenance plays an important role in the hardiness of this plant; therefore, if you are in the northern area, purchase only from nurseries that are growing plants from northern seed sources or cuttings of same. Inkberry's habit is an upright oval, reaching 6 to 8 feet in height. The mature leaves are a dull green with the new growth being somewhat lime-green in color. When young, this upright branching habit requires little pruning but as it matures, it becomes open, almost leggy. Therefore, this evergreen requires either frequent pruning or total pruning. The ¼-inch black fruit is not particularly effective but does add some interest in the landscape. Although there are several selections of *I. glabra*, in Central Michigan we feel the straight species is most adaptive. In woodsy landscape large areas or homes, this shrub is great as a specimen.

Michigan Holly *(I. verticillata)* is perfectly hardy throughout Zone 3. It is a native to Michigan. *I. verticillata* prefers swampy, high organic, wet soils. Its rather twiggy, dense habit makes it outstanding in mass use, for commercial or high-

Continues on page 38

Douglas J. Chapman is a Horticulturist at Dow Gardens, Midland, Michigan

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way plantings, or in naturalized settings for the home landscape. It reaches 7 to 10 feet in height. The foliage is a deep rich green in the summer, becoming a lustrous black after freezing. This deciduous holly could be selected for its outstanding brilliant red fruit which is about ¼-inch in diameter. This red fruit is effective in the landscape from August through January and becomes a secondary fruit for birds—an added bonus in an otherwise dreary northern winter. Davidson at Michigan State University has done some work with Michigan Holly and finds its fruit outstanding. He feels it is exceptional not only for home landscapes but institutions as well. The insect and disease problems are minimal with powdery mildew being significant but not catastrophic.

The blue hollies or X *Meserveae, I. aquifolium* and *I. rugosa,* have been reported to do well in sun or shade, adapting well to a wide range of soil conditions while showing good tolerance to winter burn. One blue holly that has been reported by Orton as hardiest in the northern area is 'Blue Girl.' 'Blue Prince,' a male form, is a good pollenizer for those of Meserve or blue hollies. It has dark shiny green foliage with no berries, reaching 15-ft. 'Blue Princess' is a smaller plant, being somewhat oval, reaching 12-ft. in height. It has dark glossy blue-green foliage and is reported to have a good heavy fruit set. These are probably the hardiest of the blue hollies. 'Blue Angel,' one that seems not to be hardy in northern areas, is somewhat slow-growing and compact with a height of 6 to 8 ft. It has glossy blue-green summer foliage with a purple-green winter foliage. The fruit is a brilliant scarlet.

When considering northern areas, such as Central Michigan, 'Blue Prince' and 'Blue Princess' have shown hardiness even in this most recent severe winter but we have only had two year's experience with these hybrids. At this point in time, we would certainly suggest trying the blue hollies but stress that landscape architects or horticulturists experiment with the plant in this area first. These plants propagate quite readily and, therefore, are becoming familiar in the nursery trade. These may prove to be some of the most exciting introductions. But only time and your trial will provide this information.

The shrub hollies should be used more efficiently. The natives range from deciduous (Michigan Holly) to evergreen (Inkberry) with foliage color and fruit being outstanding characteristics. Wyman reports that the Japanese Holly and Inkberry thrive in urban conditions. When looking for variety in the landscape, let's try hollies, from the natives to the blue hollies—a chance for diversity and excitement. **WTT**

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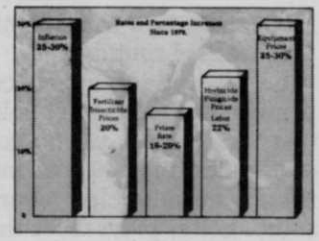

STATE OF THE LANDSCAPE INDUSTRIES

ket to the Green Industries.

Kline predicts the turf and landscape market will grow at a rate of 10 percent annually to 1986, measured in current dollars. It sees lawn care growing by 24 percent annually in the same period. A growth rate of 12 percent was set for fertilizers.

The dilemma of farm equipment manufacturers is well known. International Harvester is trying to restructure its debt and even John Deere is cutting back production this year. High interest rates are keeping landscape businessmen away from large equipment purchases the same as farmers. However, the prospects for a quick recovery are better for the landscape market as equipment efficiency is stressed to cut labor and interest rates drift downward.

Equipment distributors called by *Weeds Trees & Turf* did not paint a dismal picture. Jack Cantu, president of Wesco-Zaun, a Toro distributor in St. Petersburg, FL, said new golf courses and tourists escaping severe winters up north are keeping his customers busy. Even Bert Bradshaw of Lawn Equipment Enterprises in Detroit has good words for his equipment business. Apparently, laid off auto workers are buying mowers and snow blowers to compete with professionals.

Equipment is pushed harder and on a daily basis in landscaping. Down time is critical. Unreliable equipment can't be tolerated. Replacement equipment simply must be purchased regardless of interest rate or price. If the prime rate falls two points this year, the landscape maintenance industry will be buying. It simply doesn't pay to wait for interest rates to drop to previous levels.

Since many landscape businessmen have trimmed staff this year to cut costs, they will know fairly accurately how much labor reduction saved. When they compare this figure to similar savings offered by more efficient equipment, they will be looking for larger but still highly maneuverable mowers. The lessons of cost cutting will not be forgotten quickly.

The turf and landscape market also purchases $140 million in turf seed each year. Advances in low maintenance turfgrasses are being applied by landscape businessmen. Renovation with improved turfgrasses will continue as landscape managers seek a turfgrass that grows slowly, looks good, and survives on less, water, fertilizer and fungicides. Improved tall fescues and hard fescues, as well as hardier Kentucky bluegrasses and perennial ryegrasses are available today. Seed companies expect adequate quantities of these lower maintenance grasses within two years.

> "The lessons of cost cutting will not be forgotten quickly."

The survey shows both an increase in the use of lower maintenance plant material and a reduction in the amount of ornamental planting. Until new construction returns to previous levels the nursery market will be supplying replacement or renovation material, at least to the professional market. The logic that the economy would encourage customers to fix up their property is sound according to NLA figures. NLA members indicated they offset new construction losses to a large extent by residential renovation work. Henry Weller, president of the American Association of Nurserymen reports nurserymen saw some cancellations. Weller encourages fellow nurserymen to adjust to present conditions rather than waiting for a turn around in sales. Turf seed experts like Doyle Jacklin, of Jacklin Seed Co., Post Falls, ID, believe the hope for large sales increases brought about by homeowners fixing up has not been realized yet. Retail seed sales have not shown dramatic improvement nor has the purchase of sod for home renovation been encouraging.

Jacklin and Jay Glatt of Turf Seed in Halsey, OR, suspect seed distributors and retailers are keeping smaller inventories, relying instead on delivery from the seed company within a week. Facing a good harvest, the seed growers need to move their inventories of Kentucky bluegrass from last year.

The Golf Market

With the number of golf courses growing at one percent per year and maintenance budgets increasing at 8 to 9 percent, the golf course market is considered a mature but consistent performer. Growth is not the only qualifier of a good market to manufacturers and suppliers. Reliability is the main concern during a recession.

The Kline report estimates annual consumption of chemicals and fertilizers by golf courses as $175 million, or $10 million less than residential and commercial lawn care. This is the first indication that golf is not the biggest market in the landscape industry.

Golf associations are aware of their growth problem and, for the first time, are all working together to improve it. "For the first time in its history, we see a marshalling of forces, a unification of key organizations in the industry to meet the challenges of the next decade . . . to take a fresh look at management of the game and to revive its economic viability," says Jim Wiley, president of the Golf Course Superintendents Association of America. "Old adversaries such as inflation, lack of adequate participation by the younger generation, the expense level and the time it takes to play golf are challenges that have built up over the years. In addition, new challenges, such as resource limitations, water and energy, must be faced. These add up to economic threats to a business and sport that has gracefully survived world crises through the years when other sports were similarly threatened."

Wiley feels the results of industry

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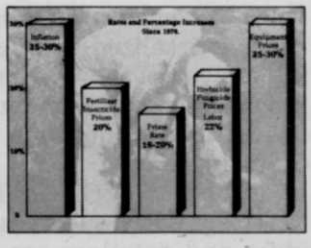

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self examination will find a receptive audience. An Allied Technical Research Task Force has been established to facilitate management practices. "The GCSAA and the U.S. Golf Association will be playing pivotal, cohesive roles in lower maintenance turfgrasses, water source and utilization research, computer resource development, and other ways of doing more for less," Wiley claims.

Golf Journal managing editor George Eberl puts it this way in a report on the high cost of golf, "When these expenses (maintenance costs) are combined with rapidly escalating property taxes, the two-headed economic monster of inflation/recession, and the proliferation of other competing sports activities, it is little wonder that golf course development has slowed considerably over the past several years and what we have is confined chiefly to resort and real estate complexes, most often in the Sunbelt States."

The National Golf Foundation has been the keeper of golf industry statistics. NGF reported out of the 150 course openings in 1981, 78 percent were linked to real estate developments and only 90 of these were totally new courses. NGF reported 118 golf construction starts in 1981.

Joe Finger, a golf course architect in Houston, TX, cites development and construction costs as the major roadblock to new courses. He estimates costs of $2.5 to $5.6 million to purchase land, build the course and clubhouse, install irrigation, and buy carts. To accomplish this, a "strictly membership club" would have to charge an initiation fee of about $9,000 to $18,000 for 300 members, or $4,000 to $9,000 for 600 members.

Finger suggests cutting the length and area of the course, reducing the number of bunkers, and installing more efficient irrigation systems with fewer heads.

Superintendents of existing courses have delayed equipment purchases and reduced crew size to work from tighter budgets. Nearly 40 percent of the superintendents in the *WTT* survey said they had adjusted plans for course improvements and cut back on travel to conferences. The least likely items to be cut are chemical applications, mowing frequency, and irrigating only critical areas. Less than a fifth of the superintendents said they would lower maintenance standards to cut costs, but one fourth said they have let some areas go natural.

Even though almost 80 percent of the superintendents said they had delayed equipment purchases, 48 percent said they were using larger mowers to cut labor time. More than half said they have converted part of their trimming to chemicals from equipment. More than 40 percent said they are improving irrigation systems for efficiency. Use of sod for repairs was reduced by a third of the superintendents. Other cost cutting procedures used by 25 percent or less of the respondents are use of growth regulators, eliminating some bunkers, use of fertilizer/herbicide combinations, and renovation to lower maintenance grasses.

> "Today it costs $2.5 to $5.6 million to build a golf course."

On the income side of golf, courses have increased membership dues an average 12.5 percent since 1980, hiked greens fees an average 15 percent, and raised cart rental fees by 13.5 percent. These increases have not kept pace with inflation of 12.5 percent in 1981 and an estimated 7 percent this year. Rounds played increased in 49 percent of the courses reporting by an average of 15.7 percent. Speed of play and marketing the course to groups are two areas contributing to increased rounds.

Demographics are becoming a prime consideration of golf promoters. They know young golfers (17 and under) play 30 percent of their rounds on municipal courses. The senior golfer plays more than twice as many rounds as the junior golfer. But, 75 percent of rounds played are by persons between the ages of 17 and 65. The dominant part of the market has time constraints due to employment. Women's golf is being slowly diminished by working women and their time constraints. Time is the key factor.

NGF estimates that 360 million rounds were played in 1980 with a 7 percent increase in 1981. Municipal courses make up 15 percent of all courses but carry 22 percent of rounds. Daily fee courses make up 45 percent and carry 45 percent of the rounds. Private courses make up 40 percent of the market and carry 33 percent of the rounds.

Some courses supplement course income with restaurant and bar and golf cart rental. Golf cars figure in time saving and cart use is increasing.

Golf courses simply can't allow maintenance costs to increase rapidly. It becomes the superintendent's responsibility to control them. Hazards which penalize the golfer and slow down play not only are maintenance headaches they are irritants to the golfer. The local course should be fast and enjoyable. The well-to-do golfer can travel to courses with the challenge they desire. The key is to increase rounds by decreasing time. The golf industry will need the 80's to find the answers to growth.

Lawn Care Market

The economy has apparently had the least effect on lawn care. It is the volume maintenance service of the landscape market. Each year it gains a greater share of the existing residential market. There are 68 million residences in the United States. Lawn care companies currently service ten percent (6.8 million) and hope to increase the percentage into the twenties during the eighties.

Growing in the past few years at

Continues on page 44

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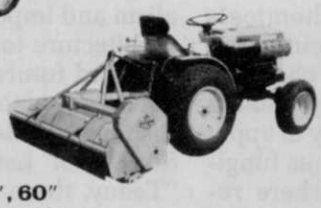

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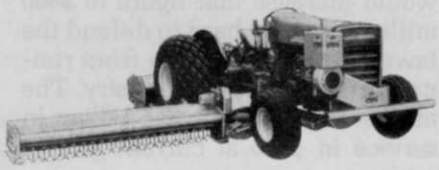

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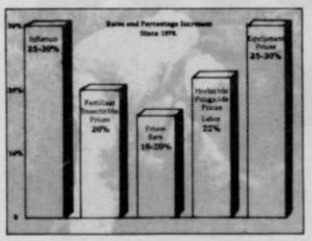

STATE OF THE LANDSCAPE INDUSTRIES

25 percent annually, this growth is expected to continue through 1986 (Kline Report). Housing starts will raise the number of residences to perhaps 75 million by 1986. Lawn care businessmen will meet their goal of 20 percent easily before then. By 1986, 20 million residences will have a lawn care service and this would represent 27 percent of the market, a figure currently reached by retail lawn care product companies.

Lawn care is divided into two major categories, mowing/maintenance and chemical application. In 1981, the market grossed $870 million in chemical and $627 million in mowing/maintenance for a total of $1.5 billion, according to a *Lawn Care Industry* magazine survey. The Kline Report estimated residential and commercial lawn care markets to consume $185 million in chemicals and fertilizers in 1981. If growth rates are accurate, the lawn care market will consume more than $560 million in chemicals and fertilizer by 1986, in 1981 dollars. Annual inflation of 6 percent would increase that figure to $800 million. It is not hard to defend the lawn care market as the front runner in the landscape industry. The market will perform $6.5 billion in service in 1986 at current growth rates.

Chemical lawn care is practiced by 75 percent of the companies according to Lawn Care Industry's survey of its readers. LCI readers serve 6.7 million chemical accounts at an average annual charge of $130. Seventy-two percent of LCI's 10,200 readers do mowing/maintenance at an average annual charge of $1,483 for 423,000 accounts.

The survey respondents averaged 22 percent profit by charging roughly $4.25 per 1,000 square feet on chemical application and $21 per hour for labor and equipment on mowing/maintenance. They spend an average of 4 percent on advertising.

As a volume oriented business, lawn care is restricted from entering time consuming landscape functions such as planting, trimming, and tree care. It is limited also in mowing work. Soliciting residential mowing accounts is not sensible at today's labor rates and overhead costs. Commercial mowing makes more sense and is more common. A residential customer will accept four to six treatments at $40 each, but might not accept a weekly charge of $40 to mow his lawn.

The line between mowing/maintenance by lawn care firms and landscape maintenance by landscape contractors is fuzzy. Landscape contractors and landscape nurserymen have claim to much of the same work.

> "By 1986, 20 million residences will have lawn care services."

Lawn care companies have experimented with tree spraying and even golf course maintenance. Tree spraying and fertilizing appear viable as an additional service to present customers.

A definite trend is offering a variety of treatments from one spray truck. Hand controls and truck controls for injection of chemicals needed for the job are being used on a limited basis. The chemical applicator can apply only what is needed and has the ability to apply specialty chemicals, such as fungicides and insecticides, where required. This cuts down on chemicals used unnecessarily in tank mixes.

Marketing sophistication may be the main reason why a part of landscape maintenance became a separate market. Specializing in one area and using promotion to gain volume made lawn care climb from meager beginnings in the late 50's to the leading landscape market of the 80's.

The Landscape Contracting Market

The fact that most of the growth in the landscape market has been from splinter groups from landscape contracting is a testament to its health. Lawn care and interior landscaping are both on the map to stay.

Without including the dollars from lawn care, the landscape contractor represents the third largest buyer of chemicals and fertilizer in the total landscape market at $110 million. It represents the greatest variety of work on a profit basis in the market. The diversity of the market gives it the flexibility to balance any weakness in any of its parts.

The majority of landscape contractors gross under $250,000 per year according to the Associated Landscape Contractors of America. WTT research indicates the average gross in less than $100,000. The landscape nurserymen remains a factor in the market although the real backbone of the market is maintenance. This becomes most apparent when construction work falls off and maintenance becomes the only reliable cash flow.

Construction, however, is the type of service provided by most landscape contractors. WTT survey results show 85 percent of landscape contractors in construction and 72 percent in maintenance. The health of the landscape architect represents a good future for construction. "People are beginning to understand the professionalism and importance of landscape architecture to the solution of current and future land planning and land use planning," says Calvin Bishop, president of the American Society of Landscape Architects. "Today, there are 25,000 to 30,000 practicing landscape architects according to the U.S. Bureau of Labor Statistics, and it reports there will be at least 1,200 job openings annually for landscape architects between now and 1990."

More than 40 accredited landscape architecture schools currently have 5,500 students enrolled. Certification exams are required in

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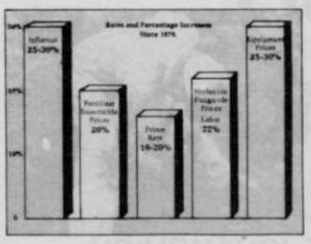


STATE OF THE LANDSCAPE INDUSTRIES

37 states as of 1982.

The 1978 Census of Agriculture identifies 34,483 landscape planting and maintenance services. California represents a third of the market. Florida and New York each have roughly 2,500 firms according to the 78 Census. The report lists gross receipts for planting and maintenance as $1.4 million and $1 million for arborist services with 10,000 firms.

The 1978 Census gave a wholesale value of trees and shrubs produced by nurseries in the U.S. at roughly $700 million if you take out fruit and nut stock. For the same year it listed foliage (tropical plants) sales of $425 million. Both this figures contain consumer purchases as well as professional purchases. Nevertheless, it shows the market for plant materials well exceeds $1 billion.

A recent survey by the National Landscape Association, a division of the American Association of Nurserymen, showed gross sales by members increased 11 percent in 1981 and a predicted increase of 7 percent for 1982. Approximately half the NLA members reported new residential landscaping and commercial renovation down in 1981, but residential renovation and commercial construction up. They anticipate commercial renovation to get worse or stay the same for 1982 and residential renovation to increase again. Loss in two areas, new residential and commercial renovation were balanced by increases in residential renovation and commercial construction. Loss of commercial construction can be balanced too by their 82 predictions.

The growing influence of the landscape architect is a positive factor in the landscape market as supported by the growth of design/build firms. ASLA's Bishop predicts, "The coming years will require continuing expansion and strengthened relationships within the entire Green Industry. Professionalism and cooperation will create, attract, and preserve the need for environmentally sound landscapes. There is a great breadth of practice in landscaping, from traditional residential design, parks and recreation, highways, military, golf, shopping centers, institutional projects, and campuses, to environmental improvement statements, landscape planning, design/build, historic preservation, research and computer assisted analysis using satellites."

The success of the Interior Plantscape Association indicates healthy growth in that market which began in the late 60's. Certification is keeping a handle on standards and the reputation of a group more aligned to contracting than to the florist industry. Changes in office and shopping center design are creating greater opportunity each year.

> "85% of sod growers report losses from construction."

The increase of contracting out by public agencies in the late 70's is slowing down. The WTT survey shows less than 10 percent of landscape contractors perform public work under contract. They point out problems with poor specifications and bidding practices. Public agencies are reporting decreases or the same level of contracting out to landscapers.

The Sod Market

"After 21 years in the sod industry, I feel our position in the industry is being threatened," said one respondent to our survey. Clearly there is a problem when 40 percent of the growers have converted some of their sod acreage to alternate crops like soybeans, corn, wheat, potatoes, onions, cabbage, spearmint and peppermint.

The problem is centered in the north with Kentucky bluegrass sod. Southern sod growers indicate business is in better shape than up north. Sun Belt growers are selling Floratam St. Augustine grass as fast as they can grow it.

Kentucky bluegrass growers face more sobering challenges with 85 percent reporting losses to housing and construction. Thirty-eight percent of the growers reported decreasing their sod acreage in the past two years. Nearly half the growers half cut prices to spur demand. More than two thirds have cut back on labor. Fertilizer rates have been lowered by nearly half the growers. A third of them have also trimmed marketing and advertising costs. Equipment purchases have been delayed by 81 percent of the respondents. A third reported cutting seed purchases by 50 percent since 1979.

The business from the landscape contractor and the homeowner is off severely. Only a fifth of the growers felt fast germinating, improved perennial ryegrasses have hurt the demand for Kentucky bluegrass sod.

One grower said he has been selling sod at the same price for five years out of necessity. A New York sod grower reported Canadian growers selling sod in the U.S. at 25 to 40 percent below local delivered prices. The market apparently has had some challenges to meet before construction fell off. Sod producers will have much to discuss at their meeting in Denver in July. Members and non-members of the American Sod Producers Association should make plans to be there by contacting ASPA, 9th and Min-

Continued on page 48

TABLE 3.
Services Performed by Landscape Contractors

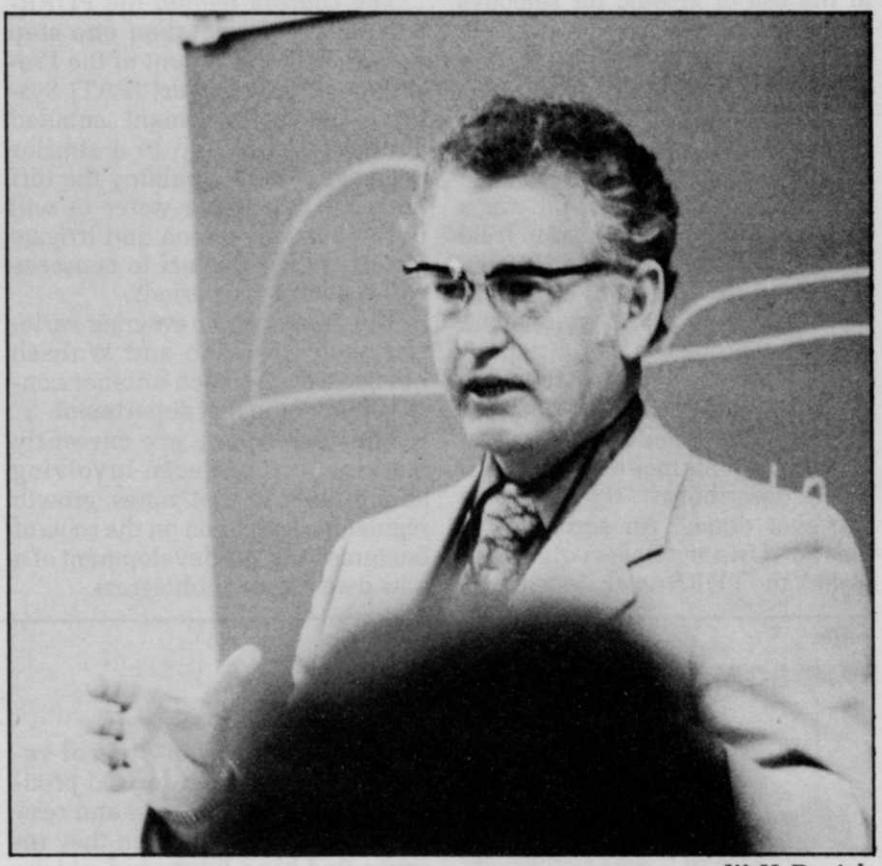
Service	Percent
Exterior Landscape Construction	85%
Exterior Landscape Maintenance	72.6%
Exterior Landscape Design	81%
Erosion Control	38%
Irrigation Installation/Maintenance	23%
Interior Landscape Installation	13%
Interior Landscape Maintenance	12%
Interior Landscape Design	13%
Nursery Retail	42%
Nursery Wholesale	22%
Sod Production	5%

PURDUE TURF PROGRAM FOCUSES ON STUDENTS

By ROBIN RICHARDS, assistant editor

A grant from the U.S. Air Force was the unlikely origin of the first university turfgrass research and education program at Purdue University. From this peculiar beginning, the program has since grown over the years and sent almost 300 graduates into the industry.

Technically, first turf program began in 1937, under the auspices of the Purdue department of physical education. It was not transfered to the agronomy department until 1940. That year, Professor George Mott had a group of students working on a runway stability project financed by the Air Force. While still working for the Air Force, a number of students shifted their interests and ideas toward golf greens. During the war years, the program's concentration remained on the original work in turf stability for runways. Though the program was still functioning after the war, as a result of the Air Force grants, Mott and his aides turned primarily to golf course and pasture work.



W. H. Daniels

The golf course area got a big boost when the Midwest Regional Turf Association and its foundation formed. No longer dependent upon sporadic grants from the Air Force, the Purdue turf researchers could finally count on a consistent income from the association for their research. With this security, the program began to roll.

In 1950, William Daniel, the current head of the program, was hired as the first full-time turf researcher. George Mott was then able to devote his full time toward work on pasture. When the chemical 2,4-D was introduced, Daniel and his colleagues were able to make a concerted effort in the study of turf quality and selective weed control that was not possible before. Concurrently, Purdue graduated its first turf student in 1952.

During this period, the accomplishments at Purdue were being supported by the strong regional membership that was being built by the MRTA. The annual Midwest Regional Turf Conference held by the association had become extremely popular as an educational resource for the area's turf managers. Each year from 1948 on, the activities and speeches at the conference were published for reference in the Conference Proceedings. The conference reached a peak attendance in 1963 when 700 members and visitors were present.

By 1963, of course, Purdue was no longer alone in the field. Similar programs were growing in other universities around the country. The MRTA and Purdue can lay claim to being the model for many later curriculums, although they lost the support of some of the fringe areas to the research stations at Michigan and Ohio.

Dr. Daniel emphasizes that Purdue still stands out for having the most extensive undergraduate four-year program. Normally, about 50 undergraduates with a turfgrass concentration are enrolled at any one time. Of those that complete the course, Daniel estimates that up to 90% stay in the green industry.

As Junior Jennifer Scifres explained, the curriculum consists of basic schedule of biochemistry, microbiology, organic chemistry and soils courses. Turf concentrators then take three specific courses: basic turf management, turf science and a seminar that allows the students to go beyond the books and formulate their own theories and solutions to turf issues.

Continues on page 48

PURDUE *from page 47*

In conjunction with the educational functions, Purdue also produces a constant stream of research findings to improve the quality of the region's turf. Both Drs. Daniel and Freeborg are credited with much of the significant early work in the use of arsenic for selective weed control. In the period from 1951 to 1975, their work shifted from lead to calcium arsenates. Each was a popular subject that the professors frequently lectured on. Consequently, the research and promotion of this treatment was a major part of the turf program from 1951 until it was banned in 1975 because of its tendency to drift. Stemming from that development, a current project in the a department is research in to a flowable form of the arsenate herbicide.

Daniel rates the PURR-wick system as one of his major accomplishments, describing it "the best thing I've ever done." An acronym for Plastic Under Reservoir Root (Zone), the PURR-wick system was developed in 1966 for greens in need of exceptional drainage. It incorporates an impermeable plastic base topped with drainage pipes and a sand medium. The grass is then planted in the sand, providing the entire system with superb drainage.

The concept behind the PURR-wick system was taken one step further with the advent of the Prescription Athletic Turf (PAT) System. This advancement entailed connecting a pump to a similar drainage system, enabling the turf manager to remove water at will during the wet season and irrigate from beneath the turf to conserve water during dry periods.

The breeding of new grass varieties such as Sodeo and Wabash bluegrasses has been another contribution of the turf department.

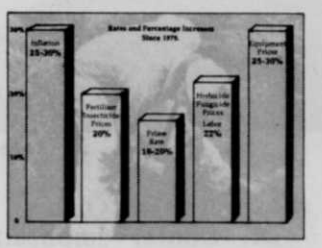
The researchers are currently working on projects involving adding fiber to root zones, growth regulator application on the roots of bentgrass and the development of a new dwarf type of bluegrass.

The research group made up of Drs. Daniel, Freeborg, a technician and nine part-time student helpers, has been making itself accessible to companies to assist with research and development. Headed by Dr. Freeborg, these projects are financially beneficial to the turf area which receives less than $100,000 annually out of the Agronomy Department's $3 million budget.

With the Purdue turf program in a relatively secure position, Daniel can see himself eventually easing into retirement. First, he would like to gradually give up some of his responsibilities to a younger individual who could then move in to a tenure track and take over on a full time basis.

Daniel does not expect the size of the research staff to change much either. Purdue's turf department is definitely leaning in the direction of the undergraduates, and will most likely continue to do so. The University is comfortable in the educational role it has carved for itself. **WTT**

LANDSCAPE *from page 46*



STATE OF THE LANDSCAPE INDUSTRIES

nesota, Hastings, NB, 68901.

The 1978 Census of Agriculture lists 1,060 growers, using 98,472 acres to produce $206,611,000 on sod and sprig sales. Since prices have not increased and acreage may now be shrinking, the 1978 figures should be similar to those of the next census.

The bankruptcy of Roll N Grow, a company making a sod mimmic with seed imbedded in a rolled jute base, also points to weakness in the acceptance of the technology involved in laying down sod or similar product. Erosion control remains a solid market for sod products. So does commercial and residential construction when they recover. Sod has a future and a niche that other products can't fill.

Whereas the sprig market in the Sun Belt has a bright future, the sod market will adjust to balance supply and demand. Prices have to go up. The small grower filling the gaps during good times and keeping prices down has to be discouraged from reentering either by certification or lack marketing ability.

The Arborist

Nature is lending a hand to this stable landscape industry. The spread of the gypsy moth has offset any decreases caused by the economy.

Erik Haupt, president of the National Arborist Association, says, "The general consensus of our members was that the current economic crisis has not affected our industry to the degree it has many other businesses. Interestingly enough, our officers and directors from areas particularly hard hit by inflation/recession indicate demand for their services is back to normal after a slow start in the first quarter."

Still, Haupt is concerned about the impact of growing insurance, tax and interest costs, in a addition to increased government regulation. "Organizations that recognize the importance of responsible business practices and utilize all available technical assistance will survive and will emerge as a stronger operations," Haupt concludes. **WTT**

"Arborists in hard hit areas report demand normal after slow first quarter."

VEGETATION MANAGEMENT

By Roger Funk, Ph.D., Davey Tree Expert Co., Kent, Ohio

Q: *I have noticed that sometimes the roots of trees stockpiled in wood chips grow several feet during the winter. Do tree roots normally grow in the winter, or is this unusual? (Ohio)*
A: Temperature is the controlling factor in root extension of many trees during the winter months if the roots are well aerated and supplied with adequate moisture. The decomposition of chips may provide sufficient heat for root growth during the winter months.

In many angiosperms and gymnosperms in the temperate zone, there is a peak period of active root growth in the spring, often before bud break. The rate of growth and number of roots is reduced during the summer followed by another peak of activity in the fall. The majority of roots become quiescent in the winter because of low soil temperatures.

Q: *We have not been able to control goosegrass for the past two years. What is the best pre-emergent control that can be applied as a granular application to turf: (Virginia)*
A: Tests conducted at the University of Maryland indicate that, of the pre-emergent herbicides currently labeled for goosegrass control in turf, Balan and Ronstar provide the best control.

Q: *What can we use to control algae in a pond which contains fish and the water is used for irrigating plants? (Michigan)*
A: Cutrine-Plus is registered for fish ponds and, according to the label, treated water can be used to irrigate turf, fairways, putting greens and ornamental plants.

Q: *I have read several articles that said charcoal could be used to tie up pre-emergent herbicides if you want to reseed with Kentucky bluegrass soon after their application. However, I can not find what rate you should use or how long you have to wait after spreading the charcoal before seeding.*
A: About seven pounds of *activated* charcoal is recommended on each 1000 square feet of turfgrass. A new seeding can be made the same day.

Q: *Could you recommend an herbicide that can be used to control Kudzu along drainage ditches? (Maryland)*
A: Glyphosate (Roundup) is registered for the control of Kudzu and for use on ditch banks.

Q: *We have been spraying Diazinon for hemlock woolly aphid without any noticeable control. Are we using the wrong material or the wrong timing (mid-April - June), or both? (Pennsylvania)*
A: Diazinon is recommended for the hemlock woolly aphid (adelgid), but your timing is wrong. The latest information indicates that a late June spray is effective in the control of developing nymphs, and late September-early October sprays will control overwintering adults. Severe infestations are difficult to control.

Q: *Since Silvex is no longer available, is there another herbicide which will control poison oak? (California)*
A: Glyphosate, under the trade name Ortho Systemic Weed and Grass Killer is an effective substitute. Amitrole also is registered for poison oak control.

Q: *Are there any approved retardants for turf? (Pennsylvania)*
A: Growth regulators currently available for turfgrass use are maleic hydrazide (Royal Slo-Gro by Uniroyal) and melfluidide (Embark by U. S. Borax), which affect meristematic activity by inhibiting growth or stopping seed head formation.

Melfluidide suppresses growth and seed head production of turf and many broadleaf weeds by inhibiting cell division or meristematic activity of plant parts with which it comes in contact. It is systemic but apparently does not translocate downward in the plant as readily as maleic hydrazide.

For specific use on grass in golf courses or home lawns, refer to label specifications or contact manufacturer. At the present time the predominant use for growth retardents is low maintenance sites where growth control is a greater priority than sustaining high quality turf.

Q: *I have several large Ficus retusa trees which are constantly covered with thrips. I have tried everything. Do you have any recommendations? (California)*
A: Cuban laurel thrips, *Gynaikothrips ficorum* (Marcal), were first reported in Florida in 1887. They are found throughout the tropics, wherever *F. retusa (nitida)* is planted, and in the United States they are recorded from California, Florida, Hawaii and Texas.

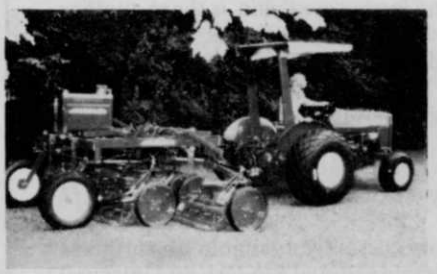
Adult thrips feed on the tender light-green leaves. A heavy leaf drop may occur at the first heavy rain after an extended period of dry weather. Most species of *Ficus* are immune to infestation, but when thrips become abundant on their preferred or specific host, *F. retusa*, they tend to cause leaf deformation and defoliation of all new leaves.

Orthene is recommended for thrips control on several ornamental crops. Research data from the University of Florida indicate that Orthene provided excellent control of thrips of *F. retusa* for five weeks. Plants should be treated as soon as thrips appear, and repeat applications may be necessary.

Send your questions or comments to: Vegetation Management c/o WEEDS TREES & TURF, 757 Third Avenue, New York, NY 10017. Leave at least two months for Roger Funk's response in this column.

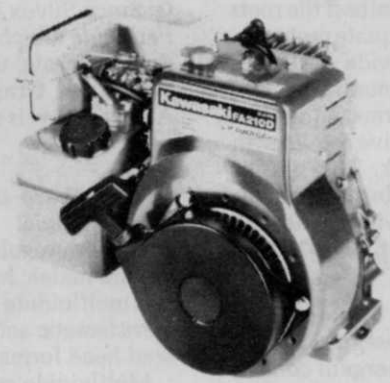
PRODUCTS

Jacobsen has a 5-gang mower frame that can be hydraulically raised on carrier wheels for moving between mowing locations. With the carrier wheels positioned for road travel, the Ram Lift Ranger has 6-in. clearance for curbs.



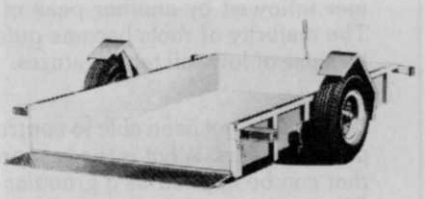
Accomodating both hydraulic and ground driven reels, the frame produces cutting widths of 10-ft. 10-in. with five gangs of 6-ft. 10-in, with 3 gangs. For maximum efficiency, the company recommends 6- or 10-blade hydraulic mowers.
Circle No. 135 on Reader Inquiry Card

Kawasaki presents the FA210 five horsepower engine. Made of a lightweight die-cast aluminum silicon alloy, it has a easily lubricated, cylinder wall



for long life without the weight of iron. The engine will operate at 3600 rpm. The horizontal shaft engine is available with a pulse pump carburetor that can provide up to 7.88 ft-lbs at 2600 rpm.
Circle No. 136 on Reader Inquiry Card

Magline has a new series of Trailevators which automatically lower to ground level, permitting equipment to be easily rolled or driven aboard. The load can then be hydraulically lifted to towing position by the double acting 5000-psi pump, located in the front of the trailer, for easy manual operation.



The trailers can carry between 2000 and 3000 lbs. with trailer bed sizes up to 70-in. wide by 10-ft. long. Options include electric brakes, lunette eye couplers, cargo restraints, and three sizes of stake racks.
Circle No. 137 on Reader Inquiry Card

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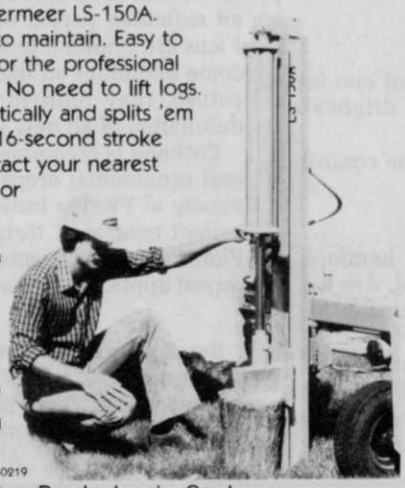
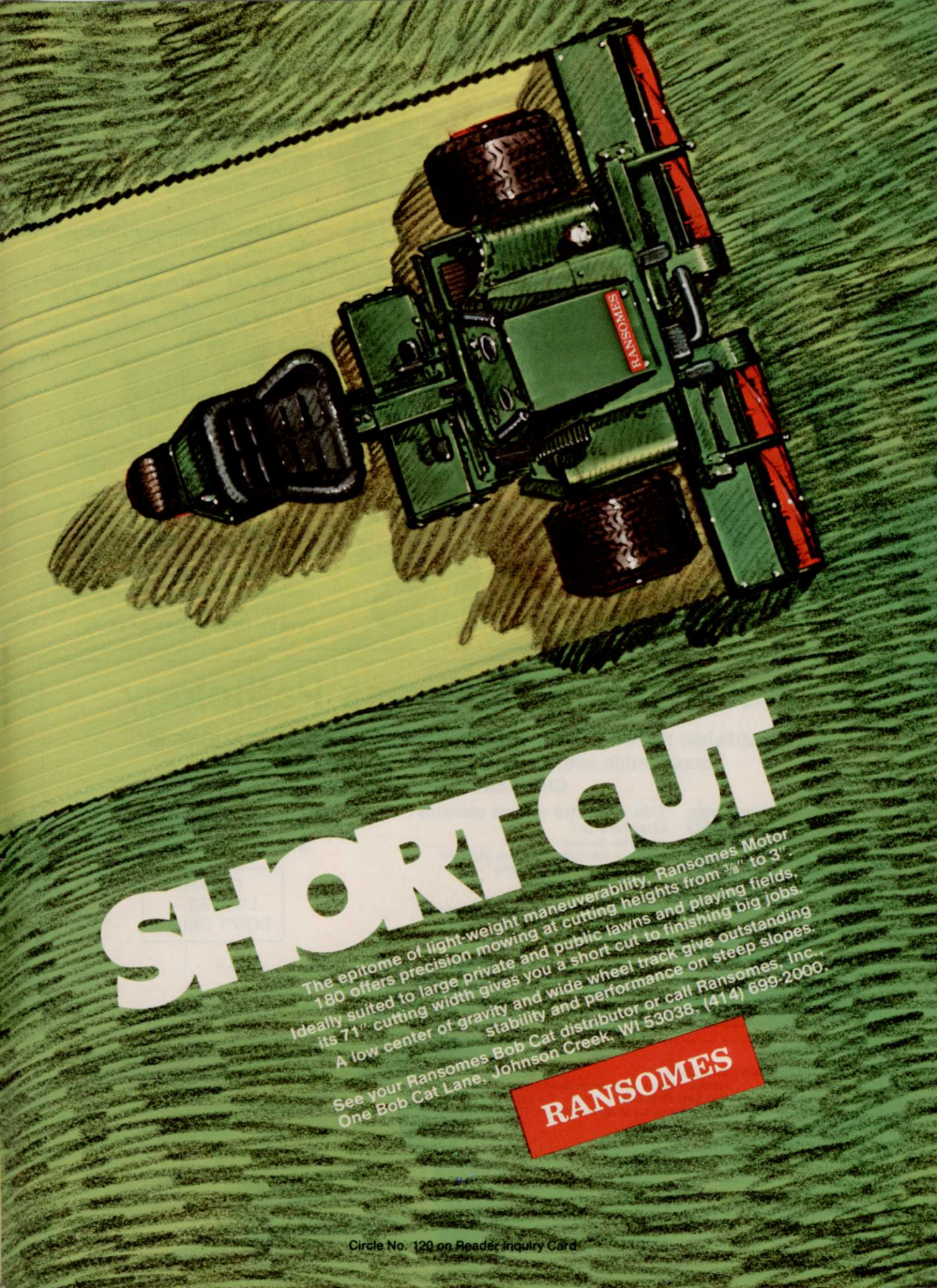


Vermeer
Vermeer Manufacturing Company
8807 New Sharon Road, Pella, Iowa 50219
Circle No. 129 on Reader Inquiry Card

Mobay Chemical's Oftanol is designed for use on both commercial and residential turf for control of turf pests. It comes in a granular form and is recom-

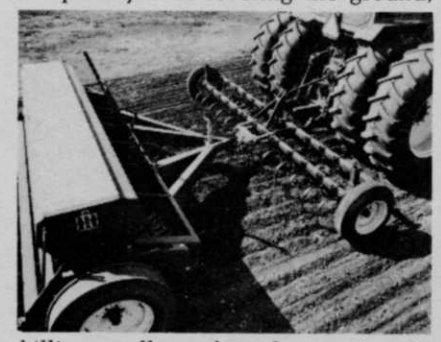
mended for mole cricket control at an application rate of 40-lbs. acre. Oftanol is also effective in controlling white grub larvae, billbugs, chinch bugs and sod webworm.
Circle No. 138 on Reader Inquiry Card

Continues on page 54



Circle No. 120 on Reader Inquiry Card

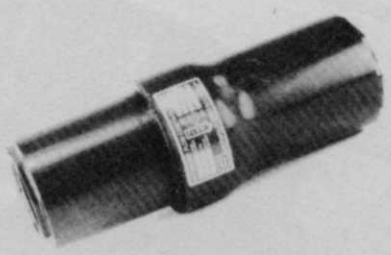
Hitch King has a cultivator equipped with heavy-duty gauge wheels which according to the manufacturer, do a complete job of leveling the ground,



killing small weeds and preparing the seed bed. The cultivator 3-point mounts directly behind rear tractor tires and is about 2-½ ft. deep.

Circle No. 139 on Reader Inquiry Card

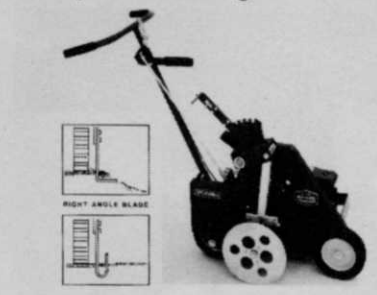
Griswold Controls announces a new line of automatic flow control valves for irrigation/landscape applications. The company holds that the valves maintain a constants flow with ± 5% accuracy despite system pressure variation. Valves are offered in 1-½ and 2-in sizes with either solvent weld or



threaded end connections. The housing is PVC-Type 1 with an all stainless steel internal mechanism.

Circle No. 140 on Reader Inquiry Card

Turfco has introduced an edger with a blade that moves in an oscillating motion rather than spinning, to create a cleanly sliced turf edge. This increases



the safety of the machine because the blade motion does not throw debris. Blades are available in "V" or right angle types, made of heat-treated steel.

Circle No. 141 on Reader Inquiry Card

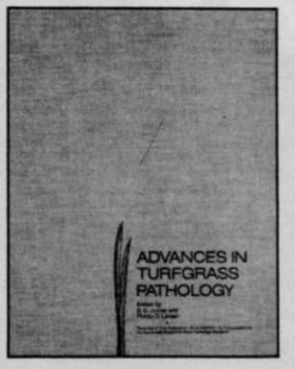
Power Spray Technology is marketing the Silver Skunk portable high-pressure sprayer for applications in pest control, and lawn maintenance. The unit operates on a garden hose hookup

or a tank and injects desired amounts of pesticide or other concentrate directly into the water.

Circle No. 142 on Reader Inquiry Card

Advances in Turfgrass Pathology

published by HARCOURT BRACE JOVANOVICH PUBLICATIONS in cooperation with Dr. B. G. Joyner, Dr. P. O. Larsen and Chemlawn Corporation



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Vermeer Manufacturing is offering a towable log splitter that comes equipped with a 5 hp Briggs and Stratton engine and a heavy-duty steel blade that delivers 20,000 lbs. of wedge force. The splitter has a vertical tower

that folds down into a horizontal position for towing and transport. The hydraulic control can split logs up to 24 inches in length.

Circle No. 143 on Reader Inquiry Card

Rohm and Haas is offering a new publication detailing weed control for Christmas trees, woody ornamentals and nursery stock using Kerb 50-W herbicide. The brochure outlines the uses of Kerb for control of winter and perennial grasses, including quackgrass, and certain broadleaf weeds. It includes directions for using the herbicide safely over the top of non-target plants.

Circle No. 144 on Reader Inquiry Card

Wheel Horse Products has a new 19-hp twin cylinder garden tractor with a Kohler engine. The tractor also features a uni-drive all gear transaxle and an Eaton model 11 hydrostatic transmission. The engine is air-cooled,

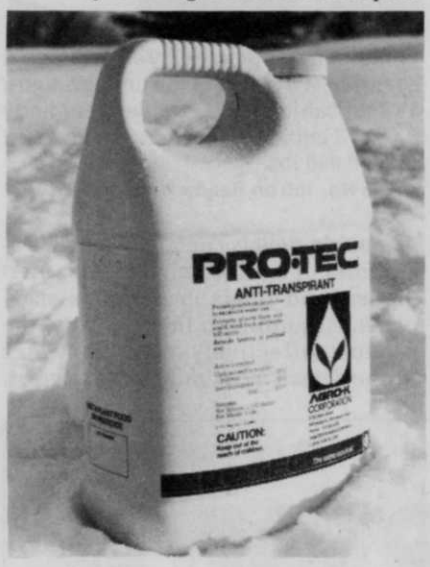
mounted transversely in the compartment, and has cast iron cylinders. The C-195, also offers a system that makes the installation and removal of attachments a simple no-tools project.

Circle No. 145 on Reader Inquiry Card

Oseco Inc., is bringing out Haga, a new Kentucky Bluegrass from Sweden. Medium to dark green, with medium width leaves, Haga will fit in with perennial ryegrasses in areas of high traffic and on athletic fields. The tiller development of Haga has resulted in a high density turf with minimum maintenance and good resistance to leaf rust spot and powdery mildew.

Circle No. 146 on Reader Inquiry Card

Agro-K Corporation now offers Pro-Tec transplant aid. An anti-transpirant, the liquid polymer prevents transplant shock by slowing down the transpira-



tion of moisture. Pro-Tec is also easy to use, non-toxic, non-flammable, and easy to clean up.

Circle No. 147 on Reader Inquiry Card

King Brothers has presented a line of Triple Swing Assemblies swing joints for sprinkler systems. The units are designed to protect the lateral piping against damage from objects striking the sprinkler heads from above. The assemblies make it easier to set the sprinklers to the proper grade by allowing the heads to move up or down in the ground. The Triple Swing Assemblies are available in ½-in., ¾-in. and 1 in. sizes.

Circle No. 148 on Reader Inquiry Card

Communication Products Co.'s Greens Saver is an electronic system that uses buried cables that send signals to receivers in each cart. When the golf carts enter into restricted areas, the receiver gives off a signal that can only be silenced when the car returns to the track. The receiver unit in the cart operates on the golf cart's batteries. The sys-

Continues on page 56

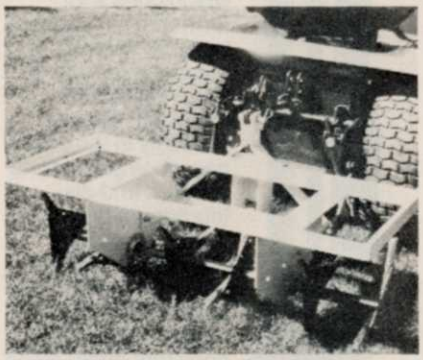
Circle No. 124 on Reader Inquiry Card

tem prevents damage to the carts, newly-seeded areas, and generally helps maintain the quality of the course.

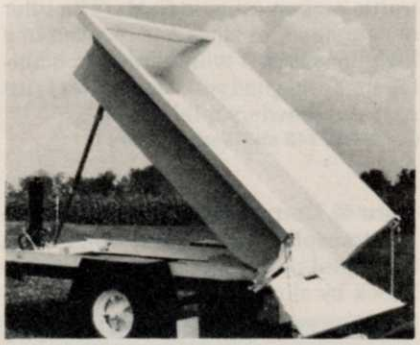
Circle No. 149 on Reader Inquiry Card

Agri-Fab has a coring aerator attachment with a hitch that hooks up to both the sleeve type and "O" hitches. It has eighteen replaceable coring points that rotate freely on ball bearings with an oversize 1-in. diameter shaft, covering a 40-in. width. The upper frame can be weighted with up to five concrete blocks to improve coring point penetration in hard ground.

Circle No. 154 on Reader Inquiry Card



Thiele has a new dump body that can be mounted on a pick-up truck or a single axle trailer. The Hef-T-Dumper has a three stage hydraulically driven cylinder and a 12 volt electrical pump



which can be operated by an individual standing at the rear of the unit through a 15 foot cable. The 14-gauge steel body has a 73 cubic foot capacity and can lift up to 6,000 lbs.

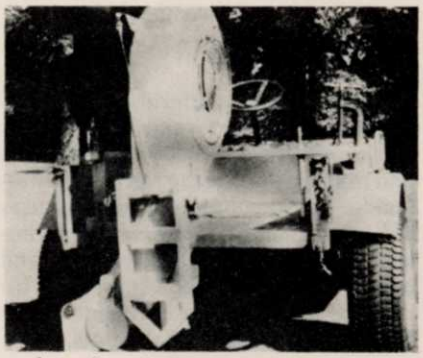
Circle No. 150 on Reader Inquiry Card

Aquacide pellets contain a concentrated form of 2,4-D combined with inert binders and fillers in a marble sized pellet. According to the company, the product effectively controls water thyme, Dutch moss, milford, tape grass,

naird, ludwigia and most aquatic weeds. The pellets sink to the bottom of the lake or pond and break up over a period of hours. The herbicide remains stratified at the root level and provides weed control for the entire season.

Circle No. 151 on Reader Inquiry Card

Atwater Strong is offering the Air-Broom for commercial and industrial use. The unit can be adapted to work-carts or two-wheel tow-behind trailers



and can be adjusted to a 11-in. or 26-in. bed height. The two way air flow directs the blast either to the left or right of the machine. The machine runs on a 16-hp engine that rotates an 18-in. eight-bladed fan at 3600 RPMs.

Circle No. 152 on Reader Inquiry Card

J.I. Case is showing the TL100, one of two handlebar trenchers offered by J.I. Case light Equipment. The walk-behind unit digs 4-in. or 6-in. trenches to a depth of up to 24". The transaxle has three forward digging gears and

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KEEP 'EM FLOWING

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EVENTS

The current issue of WEEDS TREES & TURF carries meeting dates beginning with the following month. To insure that your event is included, please forward it, 90 days in advance, to: WEEDS TREES & TURF Events, 757 Third Ave., New York, NY 10017.

Cornell University/NY State Turfgrass Association Summer Field Day, Long Island, NY, **July 13.** Contact Ann Reilly, NYSTA, 210 Cartwright Blvd., Massapequa Park, NY 11762, 516/541-6902.

107th Annual American Association of Nurserymen Convention, Sheraton-Waikiki, Honolulu, HI, **July 16-22,** Contact Henry Weller, AAN, 230 Southern Building, 15th and H Streets, NW, Washington, DC 20005, 202/737-4060.

American Sod Producers Association Summer Convention and Field Days, Stouffer Inn, **July 21-23.** Contact Bob Garey, ASPA, 9th and Minnesota, Hastings, NE 68901.

Mississippi Turfgrass Association 23rd Annual Conference, Howard Johnson Motor Lodge, **July 24-26.** Contact Don Blasingame, P.O. Box 5426, Mississippi State University, Mississippi State, MS 39792.

Penn Allied Nursery Trade Show, Hershey Lodge and Convention Center, **July 27-29.** Contact Pat Norman, PANTS, 234 State Street, Harrisburg, PA 17101-1181, 717/238-1673.

University of Illlnois Turfgrass Field Day, Ornamental Horticulture Research Center, **July 28.** Contact Dr. David Wehner, 217/333-7847.

Clemson University Horticultural Gardens Flower Day, Horticultural Gardens, Clemson University Campus, **July 31,** Contact Landon Miller, Department of Horticulture, 161 P&AS Building, Clemson University, Clemson, SC 29631, 803/656-3403.

Illinois Landscape Contractors Association Annual Summer Field Day, Wilson's Nursery, Hampshire, IL, **August 4.** Contact Lucile Little, 4A East Wilson Street, Batavia, IL 60510, 312/879-5566.

Maryland Turfgrass Field Day and Equipment Show, Hopkins Plant Research Farm, Silver Spring, MD, **August 4.** Contact Peter Dernoeden, University of Maryland, Dept. of Agronomy, College Park, MD 20742, 301/454-3717.

University of Rhode Island Turfgrass Field Day, Turfgrass Research Farm, URI, Kingston, RI, **August 25.** Contact C.R. Skogley, Professor land and Soil Science Dept., Woodward Wall, URI, Kingston, RI 02881, 401/792-2570.

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John Bean 60gpm Hydraulic Sprayer: 600 Gallon Tank (recently recoated), 400' ¾" PVC Hose, Hannay Series 6000 Electric Reel, and 785 Spraymaster Deluxe Gun, Mounted on 1964 International 1600, All In Good, Ready-To-Use Condition. $13,500.00 Call (216) 381-1700. 7/82

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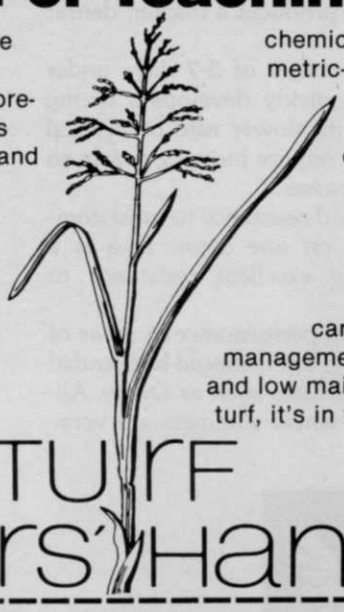

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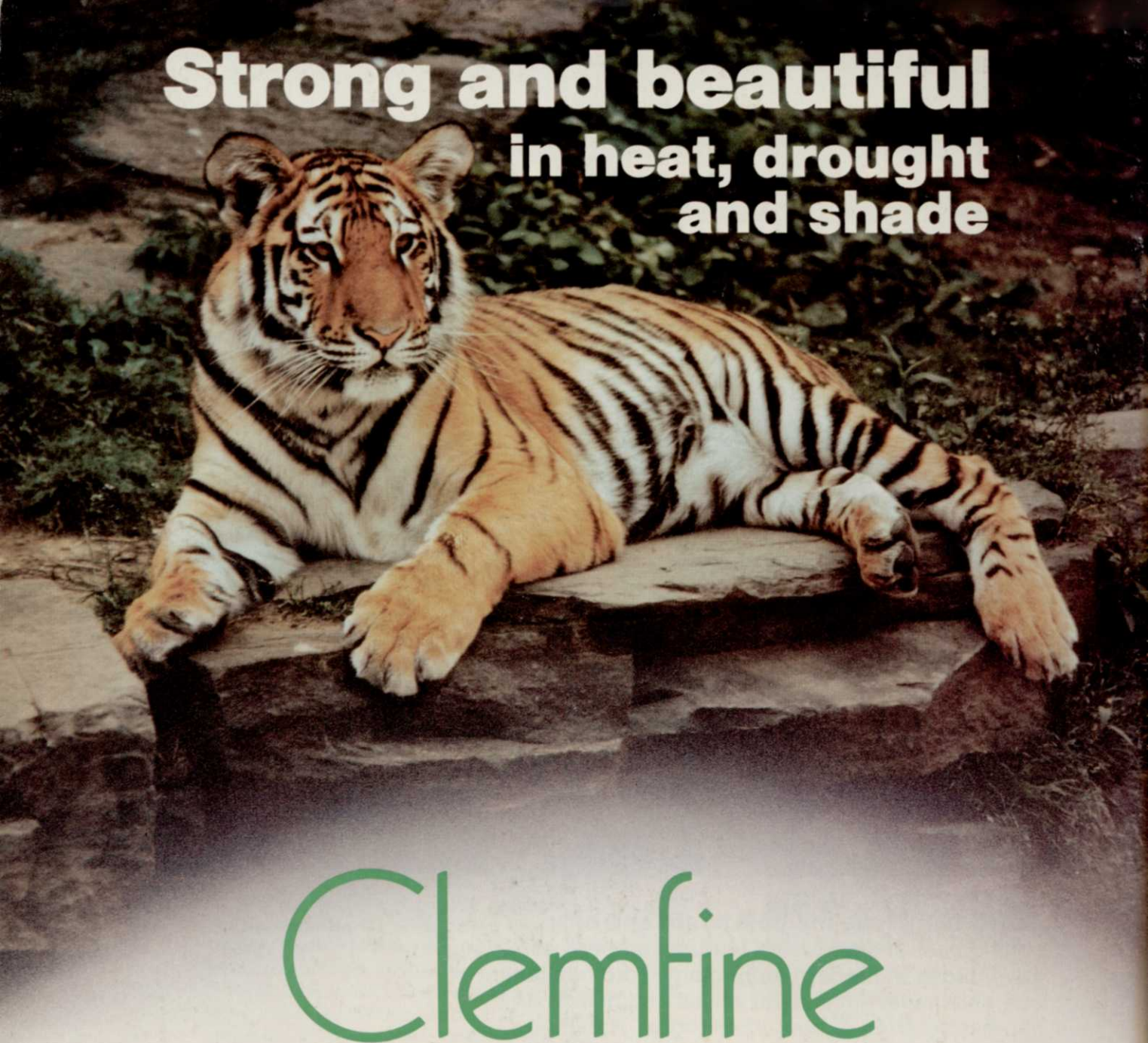

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